Journal OF THE AMERICAN DIETETIC ASSOCIATION

JUL 1 8 1945

VOL. 21, NO. 7 JULY-AUGUST 1945

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Entered as second-class matter June 30, 1925 at the Post Office at Baltimore, Md., under the act of August 24, 1912
Published Monthly (except August and October) by The American Dietetic Association

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THE PROBLEM OF FEEDING ARMY AIR FORCES FLYING PERSONNEL

MARION E. GRAY

Marion E. Gray, Food Consultant to the Air Quartermaster, became Dietitian for the Army Air Forces in January 1945 after acting for two and one half years as assistant to Mary I. Barber, Food Consultant to the Secretary of War.

Miss Gray received the B.S. degree from Simmons College and the M.A. degree from Columbia University. Her major at Simmons was in nutrition and at Columbia in quantity cookery. She has studied also at Harvard College and Boston University.

Her professional work prior to her appointment in the War Department in 1942 included that of nutritionist, dietitian, college foods instructor, and director of home economics departments. Miss Gray, while serving as assistant to Miss Barber, had charge of the test kitchen in the Subsistence Division of the Office of the Quartermaster General. Under her direction all dehydrated foods and new processed foods considered for overseas Army rations were tested, and new recipes for their use developed. She had an active part in planning the Army's Master Menu, used in this country, and in compiling recipes for overseas "B" ration menus.

In January 1944, the Office of the Air Quartermaster, Army Air Forces, requested Miss Gray's assistance in planning special menus for flyers going to high altitudes. She spent many weeks at Smoky Hill Army Air Field, Salina, Kansas, doing research work in conjunction with Major D. M. Green and Major J. S. Butts, authors of the paper immediately following, on the messing of flying personnel. During this time she compiled and edited the Flight Feeding Manual described below (A.A.F. Manual 49-1), which was released December 30, 1944.

As Food Consultant to the Air Quartermaster, Miss Gray acts as a consultant on all nutritional practices, food research and development projects, and on planning special menus for Army Air Force flyers. In addition, she advises on technical and nutritional phases of policies and procedures for eliminating waste in the storage, handling, preparation, and service of Army food. She reviews and prepares doctrines regarding methods of mess management and food preparation in the A.A.F., and visits Air Force installations to supervise and render technical assistance on special food projects, tests, and on better food preparation and service. She maintains close liaison between the Office of the Quartermaster General, the consultants to the Secretary of War, the Food and Nutrition Board of the National Research Council, and other government and civilian agencies connected with food service.

At an Army Air Force Food Service Conference held recently, Lt. Gen. B. K. Yount, Commanding General, A.A.F. Training Command, said, "The Air Forces have a special problem in food preparation and in food service. We have it because we live a little differently and we move a little differently than the other branches of the Army." One of these special problems is that of in-flight feeding.

Considerable research work had to be done before meals were planned for feeding flying personnel. One such study is described in the paper immediately following, "Factors Affecting Acceptability of Meals Served in the Air." Findings of this study and other research work resulted in the compilation and publication of the A.A.F. *Flight Feeding Manual.*

It is evident that anoxia (a diminution of oxygen in the blood) is directly in proportion to the altitude (or the oxygen tension). Consideration of the structure and intermediary metabolism of the three primary classes of foodstuffs suggests that the oxygen requirement for carbohydrate metabolism should be appreciably lower than that for protein or for fat. The end products should also give the highest R.Q. This would appear to establish with reasonable certainty the superiority of high-carbohydrate pre-flight and in-flight meals in reducing susceptibility to anoxia, which would result in greater efficiency of air crews flying at medium altitudes without oxygen as well as for those operating at very high levels with oxygen.

Although most airplanes are equipped with satisfactory oxygen equipment, in view of the above considerations it seemed worth-while to attempt to plan pre-flight and in-flight meals that would meet the qualifications of palatability along with a relatively high-carbohydrate and a relatively low-protein content. Menus were tested under operational training conditions with the food actually consumed by the crews on the ground and in the air. Only those menus which the men liked were included in this manual.

Other factors were considered, such as the fact that intestinal gases during ascent expand as the external pressure falls. At 18,000 feet, gas will double in volume, and at 39,000 feet it is increased 5 times. This may lead to considerable pressure on the abdominal wall and diaphragm, thus decreasing the space in the thoracic cavity, interfering with the digestion of food and causing pain with varying degrees of severity. Thus the selection of foods which give rise to a minimum of gas is of prime importance. Some foods to be avoided are:

(1) Carbohydrates which escape digestion in the stomach and therefore are acted upon by bacteria in the colon, such as doughy breads and poorly cooked starches.

(2) Foods which tend to give rise to digestive disturbances, such as cabbage, cauliflower, Brussels sprouts, onions, and baked beans.

(3) Foods containing abnormally high amounts of fat which are slow to digest, such as pork products other than well-cooked bacon.

(4) Highly carbonated drinks.

With the above-mentioned facts in mind, menus were planned for pre-flight, in-flight and post-flight meals. In order to assure a daily balanced diet for flying personnel, the post-flight meals were made high in minerals and vitamins, and included large servings of protein-rich foods. Following are typical menus:

Pre-Flight	In-Flight	Post-Flight
Grapefruit juice	Bouillon	Cream of tomato soup with croutons
Oatmeal with milk and sugar	Chicken fricassee	Baked ham with raisin sauce
French toast with syrup	Mashed potatoes	Candied sweet potatoes
Crisp bacon	Buttered peas	Succotash
Buttered toast	Cranberry sauce	Bread with butter
Coffee	Baking powder biscuits	Baked custard with caramel sauce
	Sugar cookies	Tea, hot or cold, with lemon
	Coffee or cocoa	

All menus and recipes are given for "B" rations (dehydrated, canned or processed foods) as well as for "A" rations (fresh foods). The use of fresh foods whenever they are available overseas is recommended in place of the canned, in order that meals may be made ultra-palatable and so tempt the appetite of flying personnel. Many unusual recipes are suggested, such as the one for lemon pie which can be made with gelatin dessert powder, dehydrated eggs and synthetic lemon juice powder. The meringue can be made with dissolved and whipped lemon-flavored gelatin powder and evaporated milk. The pie after being chilled cuts like a slice of ice cream pie and is very popular with the flyers.

In addition to menus and recipes especially designed to meet the nutritional requirements of flying personnel, there are chapters in the *Flight Feeding Manual* on: Food Facts to be Considered in High Altitude Flying; Most Desirable Foods for Altitude Feeding; The Care and Maintenance of Hot Food Container, known as the FTG3-Food Warmer, used for carrying and heating meals aloft in planes (*see* photograph on page 416 this JOURNAL); How to Set Up an In-Flight Feeding Service; The Preparation and Packing of In-Flight Meals. The Foreword calls attention to the fact that the primary function of flight messes is to serve operational needs, and that the hours of mess service should be flexible enough to meet all operational flying schedules; the latter is known in the Army as a case of "operations ruling the mess."

It is believed that if the principles presented in the *Flight Feeding Manual* are properly applied for all bomber units engaging in missions of more than five hours' duration, valuable results in improved performance and morale of air crews will result.

MARION E. GRAY
Food Consultant to the Air Quartermaster

A MEAL SERVED ALOFT

Definition of Terms

What is a home economist? And what is home economics? An accurate, serviceable definition of those terms would be of great value in interpreting our field to the public. The 1200-page *Dictionary of Occupational Titles, Part 1, Definition of Titles*, issued by the U. S. Department of Labor, and now being used by the War Manpower Commission, points up the need both for exact definitions and correct job analyses. It has no list for "home economist," but under "home economics expert" it says: "See home demonstration agent" and adds that the home economics expert "demonstrates the efficient and economic operation of various types of cooking equipment; may train sales people, give cooking demonstrations, or supervise cooking schools."

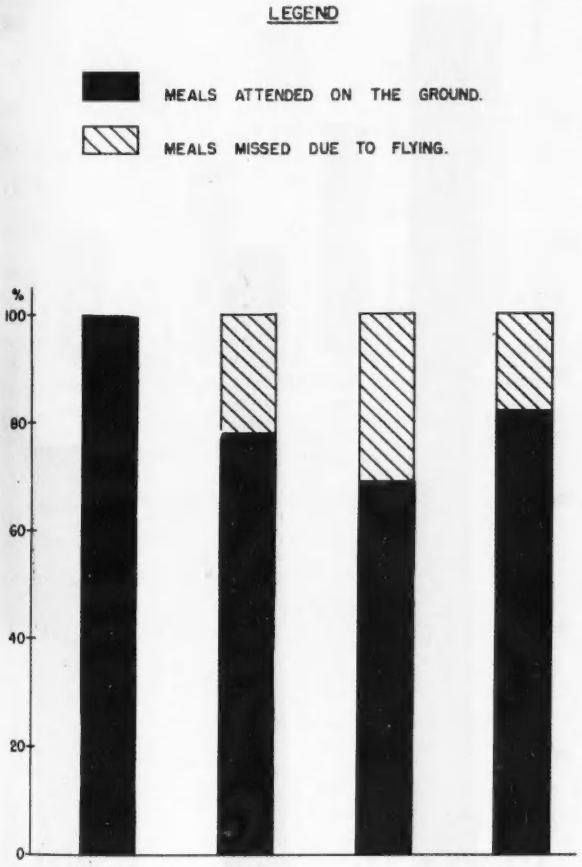
For a definition of "nutritionist" the reader is asked to refer to "chemist, nutritional" and finds under that heading, "a chemist, biological, who conducts research to determine values of specific types of food, breaking down food elements into component parts and calculating protein amounts in food and amounts necessary to afford body nourishment and promote growth, to repair body tissue."

The description of the work of the dietitian or "dietist" is no more satisfactory. Needless to say, AHEA headquarters office went into action at once with the USDL to "enlighten their darkness."—*From What is a Home Economist, J. Home Econ. 37: 289, 1945.*

FACTORS AFFECTING ACCEPTABILITY OF MEALS SERVED IN THE AIR[1]

MAJOR D. M. GREEN, M.C., AND MAJOR J. S. BUTTS, SN. CORPS, A.A.F., A.U.S.[2]

THE problem of food in flight springs directly from the increasing range of aircraft. Hunger accompanies long flights as well as shorter ones requiring individuals to be in the air during regular meal hours. Furthermore, considerable evidence exists that the maintenance of efficiency requires food intake at reasonably close intervals. Finally, personnel who fly long missions frequently, as do members of air crews, need meals aloft simply to attain an adequate level of nutrition. This point is illustrated in Graph 1, which represents a survey of flight personnel in one bombardment squadron. During an average 30-day period, flying activities were responsible for the crews' missing 18 per cent of all meals.



GRAPH 1. THE MESS ATTENDANCE OF FLYING PERSONNEL (AVERAGE OF ONE THIRTY-DAY PERIOD)

Methods used for serving meals aloft may be grouped in 4 categories: Sandwich Lunches; Meal Pickup Services; Flight Galleys; Heated Meal Containers.

The Sandwich Lunch. The sandwich-type lunch is that most widely used in the armed services for serving a meal aloft. A more elaborate version is in use on some airlines.

In simplest form the lunch consists of one or more sandwiches and a thermos of hot coffee. Its advantages are compactness, ease of preparation and consumption, and light weight. It is useful on short flights for providing a between-meal snack or on small, short-range aircraft with extremely limited opportunities for the eating of a more complete repast.

The limitations of the method are many. On long flights, particularly at high altitudes, foodstuffs put up in this manner become cold, dry, and stale. The meal has relatively poor appetite appeal, especially if recurrently used in an unembellished form. Finally, its nutritional value is limited. On flights longer than 5 hours it represents the least satisfactory solution to the in-flight feeding problem.

Meal Pickup Services. Meal pickup service in some form is the dominant method of feeding currently used by the airlines. It is reasonably satisfactory for flights which extend through the usual meal hours when facilities can be created for the picking up of individually-prepared meals shortly before serving time.

A major disadvantage is the necessity for eating the meal soon after pickup, since palatability depends on the use of thermos containers for retention of heat in certain foods and on recency of preparation for the eye appeal and flavor of others. Consequently the method is unsuited to flights longer than 5 hours. Even if schedules permit landing at shorter intervals, considerable coordination is required to get food and airplane together at the right time. Control of kitchen personnel and food preparation at widely scattered points is a necessity. The method breaks down entirely if the airplane deviates from schedule and at mealtime is at a point at which the pickup service is not available.

Flight Galleys. The flight galley method of meal service includes both the actual cooking aloft of some or all menu items and the preparation of individual meals from foodstuffs precooked and kept hot in bulk containers, electrically heated. Versions of the method have been used aboard long-range flying boats and to a minor degree on the larger Army bombers and transport aircraft.

At present, the practical difficulties in adapting this method to widespread use are considerable. The equipment necessary is relatively bulky and heavy. A number of implements, containers and dishes are needed besides those required to eat the meal. The method tends to be messy and odoriferous, and creates an additional cleaning and vermin problem in aircraft. Finally, the preparation and serving of a palatable and acceptable end product demand an extra, highly-trained crew member, magnifying the personnel problem and reducing the pay load.

Heated Meal Containers. The use of electrically-heated cabinets to retain individually prepared precooked meals on long flights was first studied on a major scale in the Army Air Forces with the development of the B-29 program. The food-warmer currently in use is illustrated in Figure 1. It consists of an insulated cabinet approximately 18 in. square by 12 in. in depth, equipped with thermostatically-controlled electric heating units which maintain an inside temperature of 160° F. Within the cabinet are placed 12 one-pint cups for soups and hot beverages, and 6 trays, with compartments for meat dishes, vegetables and hot breadstuffs, or desserts. In the upper part of the cabinet is an unheated drawer for silverware, sugar, fruits, and cold breadstuffs and desserts. The apparatus is designed to provide 6 persons with

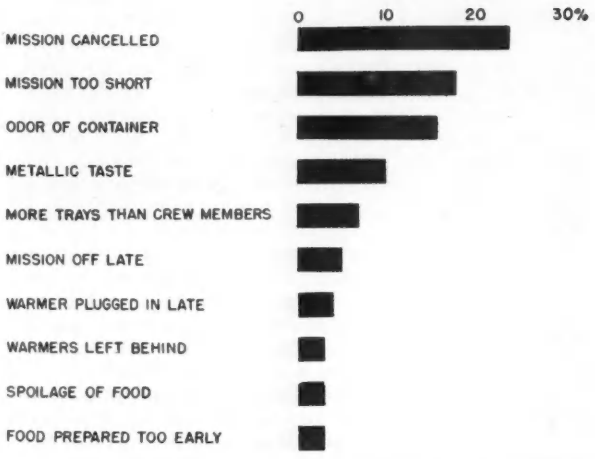
[1] This report is based on studies carried out under the auspices of the Medical Section, 73rd Bombardment Wing, at Smoky Hill Army Air Field, Salina, Kansas, from April 1 to September 1, 1944. The investigation was made possible through a grant from the Research Division of the Air Surgeon's office, and with the help of personnel and supplies furnished by the Air Quartermaster, the Quartermaster General, and the Air Technical Service Command. Received for publication April 19, 1945.

[2] Major Green is the Surgeon of the 73rd Bombardment Wing; Major Butts is assigned to the Office of the Air Quartermaster.

individual meals complete as to nutritional value and appetite appeal.

The advantages of the method are significant. The apparatus is small, light and simple, creates no mess and requires neither skill nor effort on the part of the crew personnel. Meals are prepared on the ground at the home base of the aircraft. Considerable latitude exists as to the time of original preparation and the hour of eating, as the food remains palatable and acceptable over a considerable interval. Limitations as to nutritional value and variety of the menus which may be served are few.

FIG. 1



GRAPH 2. REASONS GIVEN BY CREW PERSONNEL FOR VARIATIONS IN USE OF FOOD-WARMER TRAYS

The preparation and serving of approximately 25,000 in-flight meals by this method to date have provided considerable data on various aspects of its use.

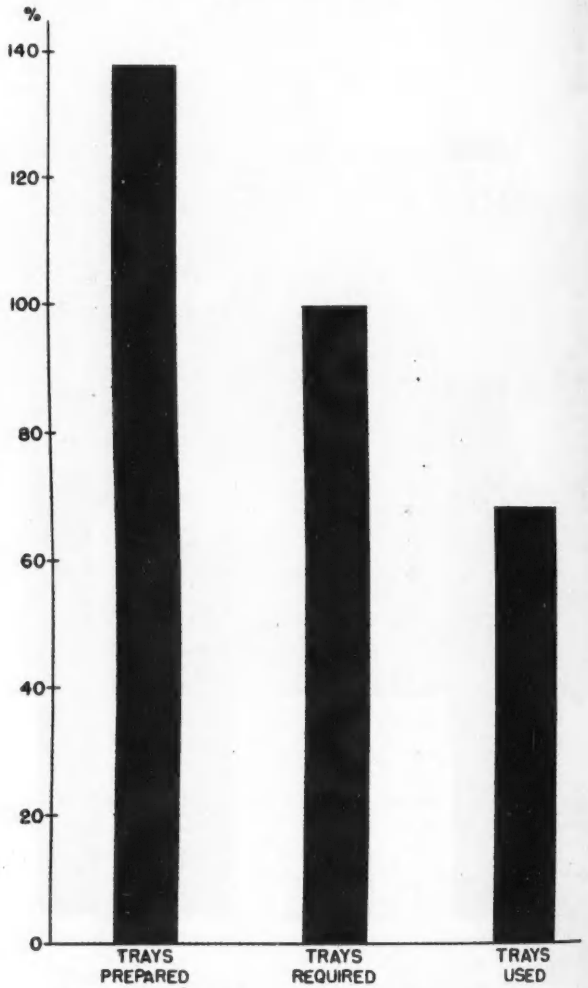
OPERATING PROCEDURE

The procedure for providing food-warmer meals aloft was instituted originally as follows: On the preceding evening, the squadron operations officer estimated the in-flight meal requirement for the following day on the basis of missions anticipated. From this estimate the necessary number of food-warmers were prepared and packed by the flight kitchen, to be picked up by the operations section about one hour before takeoff time. Instructions tagged on each food-warmer called for plugging the apparatus into the aircraft electric circuit 2 hours before contemplated time of eating.

On completion of the flying period all food-warmers used and unused, were returned to the flight kitchen for cleaning and storage.

MEAL REQUIREMENT, PREPARATION, AND USE

Early in the in-flight feeding program it became evident that a considerable range of variation existed between the estimated daily meal requirement and the number of food-warmer meal trays actually used.



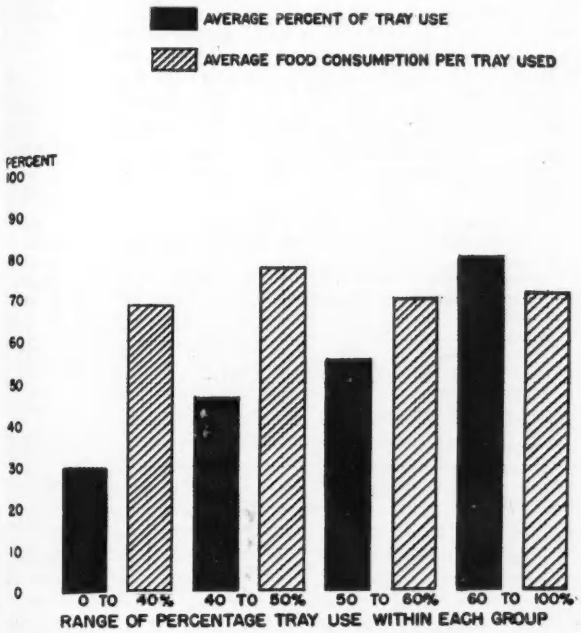
GRAPH 3. TRAY PREPARATION, REQUIREMENT AND USE REQUIREMENT SHOWN IS THE MAXIMUM BASED ON FLYING TIME AND AIRCRAFT IN COMMISSION

An explanation for this variation was sought in a questionnaire distributed to crew personnel. The reasons advanced are listed in Graph 2. Major cause suggested by the replies was unanticipated change in the actual meal requirement due to cancelled, aborted and short missions. Other reasons dealt with technical deficiencies in the food-warmer itself, such as: metallic taste, odor and food spoilage.

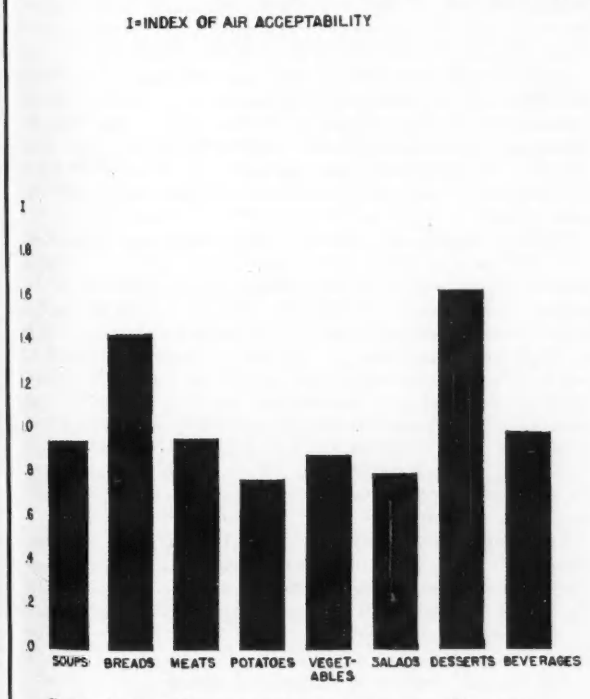
To obtain factual data on these points, a retrospective analysis was made of flying time, aircraft in commission, meal preparation and tray use over a 30-day period. Results are illustrated in Graph 3. The analysis indicated that the daily number of missions usually was less than

that anticipated on the preceding evening, on which the in-flight meal requirement was based. As a consequence, the preparation of trays exceeded the maximum possible daily requirement by 37 per cent. Use of trays fell short of this maximum by 31 per cent. The latter discrepancy appeared due in part to missions which had not provided opportunity for consumption of a full, hot, meal aloft. Examples include aircraft which took off late or returned early because of mechanical difficulty, transition type flights in the vicinity of the base, and missions foreshortened on account of weather.

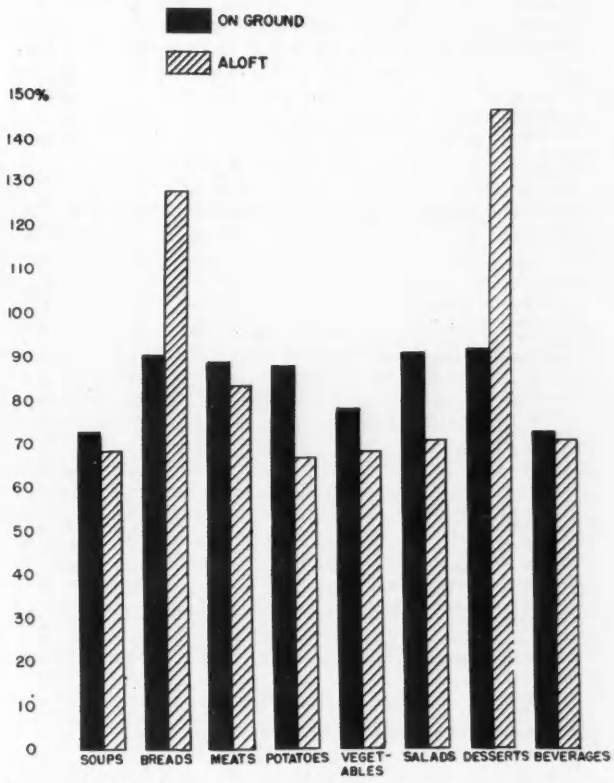
To estimate the influence of technical deficiencies on food-warmer utilization, an analysis was made of the percentage of food actually eaten out of the individual meal tray in relation to the daily percentage of trays used. It was believed that if poor acceptability were responsible for the low percentage of tray use noted on certain days, it should be reflected in a reduced consumption of food from trays actually tried by personnel on those days. Results of this analysis are shown in Graph 4. No significant differences in food consumed from individual trays were found throughout the range of percentage tray



GRAPH 4. THE CONSUMPTION OF FOOD PER TRAY IN RELATION TO AVERAGE DAILY VARIATION IN PERCENTAGE TRAY USE (EACH GROUP REPRESENTS ONE QUARTER OF THE DAYS SURVEYED)



GRAPH 5. THE RELATIVE ACCEPTABILITY OF FOODSTUFF ON THE GROUND AND ALOFT



GRAPH 6. A COMPARISON OF FOOD CONSUMPTION ON THE GROUND AND ALOFT, EXPRESSED IN TERMS OF PER CENT OF ONE PORTION EATEN

TABLE 1

Comparison of the acceptability of various foodstuffs when served on the ground and aloft in terms of percentage of one portion eaten

	ALOFT	ON GROUND	INDEX OF AIR ACCEPTABILITY
	%	%	
Soups	68.7	73.3	0.94
Breads	127.8	90.3	1.42
Meats	83.5	88.1	0.95
Potatoes	66.4	87.5	0.76
Vegetables	68.4	78.6	0.87
Salads	70.7	90.7	0.78
Desserts	146.9	91.6	1.60
Beverages	70.8	72.8	0.97

TABLE 2
Acceptability of various foods

	ALOFT	ON GROUND	INDEX OF AIR ACCEPTABILITY
	%	%	
Soups			
Potato	89	70	1.27
Chicken	87	69	1.26
Tomato	78	79	0.99
Bouillon with rice	75	85	0.88
Corn	69	79	0.87
Pea	62	74	0.84
Vegetable	61	79	0.77
Asparagus	55	56	0.98
Beef broth	42	69	0.61
Breads			
Biscuits	150	95	1.58
Rolls and butter	140	96	1.46
Bread and butter	133	97	1.37
Corn bread	89	73	1.22
Meats			
Frankfurters	100	93	1.07
Steak, Swiss	98	85	1.15
Pork roast, gravy	97	89	1.09
Hamburger	95	93	1.02
Lamb fricassee	95	93	1.02
Beef (corned) patties	94	84	1.12
Liver	88	95	0.96
Sausage	88	98	0.90
Lamb roast	87	84	1.04
Ham	87	94	0.93
Chicken roast	87	97	0.90
Beef stew	86	75	1.15
Chicken, fried	86	94	0.91
Macaroni and cheese	85	86	0.99
Spaghetti	84	84	1.00
Beef roast	84	85	0.99
Chicken fricassee	84	91	0.92
Beef and macaroni loaf	79	82	0.96
Chicken and noodles	79	84	0.94
Veal fricassee	76	82	0.92
Meat and vegetable hash	74	85	0.87
Beef and vegetable stew	72		
Bologna	71	77	0.92
Veal roast	63	88	0.72
Meat loaf	63	95	0.68
Beef (corned) hash	57	96	0.59
Potatoes			
Parsleyed	88	90	0.98
au Gratin	83	75	1.11
Oven brown	78	91	0.86
Boiled	77	82	0.94
Lyonnaise	77	96	0.80
Baked	70	86	0.81
Hash brown	64	87	0.74
Potato cakes	62	96	0.65
Fried	62	96	0.65
Creamed	60	89	0.67
Mashed	58	87	0.67
Sweet, candied	44	68	0.65
Scalloped	40	94	0.43
Vegetables and Side Dishes			
Celery	100	97	1.03
Hominy grits	83	79	1.05
Dumplings	83	78	0.85
Radishes	83	100	0.83
Cranberry sauce	80	81	0.99
Corn	79	88	0.90
Tomatoes, stewed	76	77	0.99
Peas, buttered	73	82	0.89
Cabbage	72	97	0.74
Beans, string	71	82	0.87
Asparagus	65	75	0.87
Beets, Harvard	63	64	0.98
Carrots, buttered	63	74	0.85
Spinach	56	71	0.79
Dressing	50	53	0.94
Turnips	33	79	0.42
Squash	32	59	0.54
Salads			
Lettuce	100	82	1.22
Vegetable	96	96	1.00
Fruit with mayonnaise	78	100	0.78
Pear and cheese	60	96	0.63
Cabbage and carrots	52	93	0.56
Lettuce and tomato	38	93	0.41

TABLE 2—*Cont'd.*

	ALOFT	ON GROUND	INDEX OF AIR ACCEPTABILITY
	%	%	
Desserts			
Doughnuts	360	99	3.64
Apple sauce cake	331	97	3.41
Fruit upside-down cake	253	100	2.53
Devil's food cake	200	89	2.25
Chocolate cake	180	95	1.89
Peach cobbler	174	76	2.29
Sugar cookies	171	94	1.82
Rolls, butterfly	169	99	1.70
Raisin cookies	154	92	1.67
Yellow cake, iced	153	97	1.57
Cherry cobbler	150	84	1.79
Pineapple upside-down cake	144	99	1.45
Pumpkin pie	107	100	1.10
Raisin turnovers	106	78	1.36
Apricot cobbler	103	92	1.12
Peach shortcake	103	97	1.06
Apple cobbler	95	90	1.06
Peaches, canned	91	97	0.94
Apple sauce	80	94	0.85
Pineapple fritters	70	92	0.76
Rice raisin pudding	60	85	0.73
Apple brown betty	55	54	1.02
Beverages			
Coffee, hot	75	67	1.12
Cocoa, hot	73	84	0.87
Cocoa, iced	68	81	0.84
Coffee, iced	67	59	1.14

use. A comparison of the extremes of the range indicated that an average increment of 170 per cent in tray use was accompanied by an increase of food consumption from the individual trays of but 2.3 per cent.

TECHNICAL DEFICIENCIES OF THE FOOD-WARMER

Absence of correlation between consumption from individual trays and daily percentage tray use offered evidence that the variation in the latter was due to causes not related primarily to palatability of the food served. Nevertheless, the existence of such deficiencies as odor, metallic taste and food spoilage could not be disregarded.

The complaint of sour or spoiled food was found due partially to fermentation of foodstuffs exposed to long periods of elevated aircraft cabin temperatures prior to heating. Plugging the warmer into the aircraft electric circuit immediately on placing it aboard prevented such spoilage by raising food temperatures above the level at which fermentative organisms could multiply. Cultures made after 18 hours of intermittent heating of the warmer showed no instance of increased bacterial flora in contained foodstuffs. Flavor differences following interrupted periods of heating are not significant. This method of operating the food-warmer appears essential to tropical and summer temperate climates.

The major cause both of so-called spoilage in the container and of metallic taste was discovered to result from the reaction of heated foodstuffs over a period of hours with the metals in trays and beverage cups. Use of glass jars for beverage containers and cardboard inserts in the tray compartments eliminated these complaints. It would appear that for maximum acceptability foodstuffs should be retained aloft in receptacles made of stainless steel or preferably glass.

The odor noticeable on heating the food-warmer and on opening the door to remove trays is believed to lie in the decomposition of food particles retained in the seams of the cabinet lining, since it did not become evident until the warmers had been in use for some time. On heating, these decomposing materials volatilize. Diligent cleansing of the cabinets has not been entirely effective in removing all

entrapped food remnants. To avoid this difficulty the interior lining of cabinets should be made in one piece, eliminating the seams. A hard-surfaced finish to the lining and rounding of all corners would permit easier and more efficient cleaning.

For permanent installation of food-warmer units or similar devices in aircraft, a small ventilating duct and exhaust fan combination to draw off normal food odors from the cabinet and discharge them outside the ship would appear desirable. The continuous smell of food, no matter how palatable, is disagreeable to some during flight.

THE ACCEPTABILITY OF FOODSTUFFS ALOFT

In planning in-flight meals the kind and quantity of foods which are acceptable aloft must be established on a factual basis. Otherwise acceptability will be low and food wastage will occur.

To secure data on food acceptability aloft, a series of 30 menus were fed to the same group of subjects both in the air and on the ground. The actual and relative amounts of each item eaten were tabulated and averaged. Since the meals were designed primarily as hot dinners which could be served from the food-warmer, breakfast foods and most fruits and juices were not included. On this basis the percentage consumption of approximately 100 food items, when served aloft and on the ground, was calculated. It was noted that certain items were consumed relatively poorly wherever served. However, such foods have been included in menu planning to give variety and avoid a lessening in acceptability of more popular items which results from repeated use of these.

In order to make clearer the relative acceptance of food items in the air, an index of air acceptability was devised by calculating for each foodstuff the ratio of the percentage of one portion eaten aloft to the percentage consumed on the ground. An index greater than one shows a higher preference aloft, while an index less than one indicates that the item loses some of its acceptability when served in the air. The percentage consumption of various classes of foodstuffs and the indices of air acceptability are shown in Table 1 and Graphs 5 and 6. The figures for individual items are given in Table 2 in which the items within a general class are listed in descending order of air acceptability.

The tables indicate that the highest acceptability aloft is possessed by baked goods and desserts. Soups, beverages and meats show roughly equal consumption in both environments. Salads, potatoes and vegetables have air acceptability about 80 per cent of that on the ground.

The percentage consumption figures for foods eaten aloft are consistent from menu to menu for items which must be heated before eating. Breadstuffs and desserts, however, since they are palatable even when cold, often were eaten when the mission was too short to allow heating of the remainder of the meal. As a result, the relative and absolute percentage consumption of these two items appears unduly high in the tables. Even so, the consumption of breads and desserts on individual long missions during which all food trays were used was equal to, or better than that observed on the ground. An index greater than one for these two classes of foodstuffs, therefore, appears to have considerable justification.

No claim is made as to the degree of accuracy of the indices noted. As more data on in-flight feeding accumulate and as technical difficulties are overcome, they will be modified. At present they may serve only as approximations, of some usefulness in menu planning.

CONCLUSIONS

1. For continuous flights under five hours in duration a sandwich lunch is the practical solution to feeding aloft.
2. For flights of greater length, the use of heated meal containers offers the simplest, most convenient, and most adequate approach to serving of meals in the air.
3. The acceptability of foodstuffs, individually and by classes, differs on the ground and aloft. Adequate meal planning requires a knowledge of this factor, based on extended and continued statistical studies of food consumption in the air, with emphasis on relationships to variation in both season and mission.
4. Food is regarded much more critically in the air. Minor alterations in taste, odor and appearance considerably affect acceptability. Consequently, great attention must be paid to skilled preparation, flavor and eye appeal.

SUMMARY

1. The requirements for acceptability of meals in the air and the methods of achieving these have been reviewed.
2. Results of an extended study of the heated meal-container method of feeding aloft have been presented. This method appears to be the most satisfactory for use on flights longer than five hours.
3. A tabulation of acceptability of approximately 100 foodstuffs in the air has been made on the basis of some 10,000 meals served aloft.

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Meals Aboard an Airliner. Starting out with box lunches that were usually passed around by the co-pilot, air-line catering has developed into big business—serving millions of meals yearly. And because space and time are still the limiting factors, a specialized type of food preparation and service has been developed to offset these limitations.

To give a passenger the choice of several entrées, as is customary in most eating places, it would be necessary to triple the amount of food prepared and carried on each flight. As this is impractical, the problem early resolved itself into "What will a majority of them eat and enjoy—and can it be prepared on the ground and later on served in the air, to good advantage?" When the stewardess serves the meal that has been provided for a given flight, the only choice the guest has is the beverage.

Menus are prepared by the chefs of United Air Lines' individual commissary-kitchens, of which there are ten, spaced across the country. Then they are submitted to the company's Chicago headquarters 2 weeks before they are to be used. This permits Mrs. Arbogust, United's dietitian, to see that duplication of dishes is avoided and that ration points are being used intelligently. At the same time, she watches the menus from the standpoint of balance so that airline passengers will get their proper quotas of vitamins and calories.

Ten menus are served from coast to coast on United Airliners in a single day. They all follow a standard pattern, yet there is practically no duplication.

Realizing that the acceptance of fine food largely depends on the manner of its presentation, United Air Lines' passenger service department takes great care in instructing its student stewardesses in the art of food service aloft. As part of their training, each student is given, in the course of her 4-week training period, 30 hours of concentrated instruction in this field.

On its various flights, United serves eight different meals or snacks, ranging from a "B-2" service (cookies and beverage) to "A-2" (complete hot meal, including soup, salad, entrée, vegetables, rolls, dessert and coffee). All these are prepared in the company's flight commissaries, located at 9 key points from coast to coast. Each individual meal is packaged in sectioned trays. These are placed, one on top of each other, in large insulated metal containers which then are deposited aboard the plane just before departure time. Hot beverages are contained in vented thermos bottles which fit into racks in the buffet.

Meals aloft generally are served from one to two hours after departure time. It is the stewardess' duty to remove the individual dinners from the large carrying case. She then removes the lids from the salad and dessert containers, equips the tray with silverware and linen, and draws coffee or other beverages from their respective thermos bottles. On a 3-hour flight meals must be served quickly. The average plane travels approximately 90 miles between soup and dessert. With 21 hungry passengers to serve, United's stewardess must move swiftly and efficiently.—*Excerpts from an article in the Hotel Monthly, May 1945.*

SOME ASPECTS OF DIETETICS IN THE VETERANS ADMINISTRATION[1]

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IN THE year 1921 a new government agency, designated first as the Veterans' Bureau and later as the Veterans Administration, was established to carry out legislation enacted by Congress for the benefit of those men and women who had rendered military or naval service in defense of the country. At that time certain hospitals that had been operating under the United States Public Health Service were transferred to the new bureau and became the nucleus from which the present hospital program of the Veterans Administration has been developed. The 23 years since the establishment of this agency have seen a continued expansion of hospital facilities to provide for the authorized medical care and treatment of veterans.

There are now 95 veterans' hospitals throughout the United States, located to meet geographic and population concentration needs. These facilities, plus those under construction and for which funds are available, total 108,500 beds. Requests are pending before the Federal Board of Hospitalization, of which General Frank T. Hines, the Administrator of Veterans Affairs, is chairman, for 27,630 additional beds, making a grand total of 136,130 beds to be made available in the immediate future. This number will be further increased after the war by transfers of hospitals no longer needed by the Army and Navy.

In considering the general scope of veterans' legislation it is the opinion of those experienced in veterans' problems that hospitalization in modern, scientific hospitals where the highest type of medical care is afforded, is one of the most valuable benefits available to veterans. Hospitalization and domiciliary care are extended to veterans of all wars, priority being given to those suffering with disabilities of service origin. The same benefits are also available to veterans of the Regular Army and Navy if discharged for a disability incurred in line of duty, or if in receipt of a pension for a service disability. Veterans, of course, are those whose service in the armed forces has terminated honorably and who have been returned to civil life.

As you are aware, members of the armed forces receive their initial hospitalization in Army and Navy hospitals. When disabled to such an extent that they cannot be returned to duty, they are retained and given careful and scientific treatment until they are sufficiently improved to receive medical discharges and be returned to their homes or transferred to veterans' hospitals. Although the majority of the patients hospitalized by the Veterans Administration are veterans of World War I, the hospital admissions for World War II veterans more than doubled in 1944. Of all veterans now hospitalized by this Administration, more than 20 per cent of the total are veterans of World War II. To date, comparatively few battle casualties have been among those transferred from Army and Navy hospitals, the greater proportion being those who have developed tuberculosis or neuropsychiatric diseases. The fact that the majority of the World War II veterans being admitted to Veterans Administration hospitals are in these two groups, is due to the lack of facilities in the Army and Navy to retain large numbers of such patients for prolonged hospitalization. In the case of all types of patients, arrangements are in effect with both the Army and the Navy for direct admission to Veterans Administration hospitals, upon discharge from the armed forces, in order to avoid any interruption in the medical treatment.

[1]Presented before the American Dietetic Association, Chicago, October 27, 1944.

As beds for tuberculous patients have been required for the veterans of World War II, one general hospital has been converted to a tuberculosis hospital and wards for general patients in tuberculosis hospitals have been changed to permit utilization for tuberculous patients. Construction changes at several tuberculosis hospitals resulted in the establishment of a number of new beds. By the end of this calendar year there will be about 8000 tuberculosis beds in operation. To care for psychotic beneficiaries of World War II who are also suffering with active pulmonary tuberculosis, units of approximately 150 beds each are being established at ten neuropsychiatric hospitals. These tuberculosis-neuropsychiatric units are being equipped to render the standard tuberculosis sanatorium regimen in conjunction with the specialized treatment of the concomitant psychosis. At four of the neuropsychiatric hospitals it is planned to equip and staff the tuberculosis units for utilization as chest surgery centers for tuberculous psychotic male and female patients.

In like manner, expansion in the neuropsychiatric group of hospitals to provide for the new patients from the current war has been accompanied by conversion of domiciliary sections in two of the national homes to neuropsychiatric hospitals, and by the construction of additional buildings at most of the neuropsychiatric hospitals, and by the creation of entirely new facilities. Of the present 87,000 beds in veterans' hospitals, 43,000 are for neuropsychiatric patients and of this number over 8000 are occupied by veterans of the present conflict.

Prior to the attack on Pearl Harbor, it had been anticipated that the peak in hospitalization for veterans of all wars would be reached about 1946. The present conflict has eliminated that estimate and established a new one that places the peak in hospitalization for veterans about 1975 when approximately 300,000 beds of all types will be required in Veterans Administration hospitals to fulfil the responsibility of the organization under laws now in effect. As you may know, the Serviceman's Readjustment Act of 1944, popularly known as the G. I. Bill of Rights, specifies that adequate hospital facilities shall be available for the care and treatment of veterans for non-service disabilities or diseases as well as for disabilities incurred in service. In addition it provides for appropriations up to 500 million dollars for completion of the Veterans Administration hospitalization building program.

In the 95 hospitals presently operated under direct and exclusive jurisdiction of the Veterans Administration, the physical and mental rehabilitation of patients is made possible by every modern diagnostic and treatment resource. While the hospitals are divided into three main types, namely: general medical and surgical, tuberculosis, and neuropsychiatric, emergent conditions of any sort can be handled at any of them.

All of the hospitals of the Veterans Administration are recognized and approved by the American College of Surgeons. Over 225 physicians of national reputation in civil practice and teachers from recognized medical schools are connected with our hospitals, special centers and clinics, as consultants. These clinics are used as teaching units for our physicians from all our hospitals. Postgraduate schools and courses of special instruction are conducted in many specialties, particularly, roentgenology, urology, pathology, ophthalmology and tropical diseases, and at our Research Center at Northport, Long Island, special training is given in nervous and mental diseases, electroencephalography and electric shock therapy.

Special diagnostic and treatment units are operated by the Veterans Administration as follows: Tumor clinics are located at Hines (Chicago), Illinois; Bronx, New York; Washington, D. C.; Atlanta, Georgia; Los Angeles; and Portland, Oregon. At Aspinwall, Pennsylvania, there is a special allergy clinic. Neurosurgical centers are conducted by our hospitals at Hines, Illinois; Washington, D. C.; Bronx, New York; and Los Angeles. Thoracic surgery is conducted in chest surgery centers at Castle Point, New York; Oteen, North Carolina; Washington, D. C.; Legion, Texas; Tucson, Arizona; Hines, Illinois; San Fernando, California; Livermore, California; and Portland, Oregon. Four centers for the diagnosis and treatment of tropical diseases have recently been established and diagnostic centers are located at Hines, Illinois; Washington, D. C.; and San Francisco.

In the field of neuropsychiatry, a special diagnostic and treatment center for veterans with early psychosis has been established at Mendota, Wisconsin, and plans are under way for the creation of a special neurosis center, somewhere near a large city, where the more intractable psychoneurotics might be sent for intensive study and treatment. It is planned to expand psychiatric units of these two types to other locations.

Through liaison with the National Research Council and daily contact with the offices of the Surgeon Generals of the Army and Navy, the Medical Director of the Veterans Administration and his six Assistant Medical Directors have had the unique opportunity of being thoroughly and currently informed on the many developments in wartime medicine. By these means, the physicians of the Administration are kept well informed of the advances being made in all phases of rehabilitation and new methods of treatment are instituted as their value is demonstrated. The character of medical practice in the various hospitals of the Administration is also affected by the advice of the Medical Council, composed of some 34 internationally recognized specialists in the various fields of medicine, who act as advisers to the Administrator and the Medical Director. The suggestions and recommendations of these medical leaders have been followed consistently through the years.

DIETETICS AS A PART OF MEDICAL TREATMENT

From its very beginning the Veterans Administration hospital program has included dietetics as an integral part of the medical treatment of veterans. It has been the policy of the service through the years to provide a general or so-called regular diet in keeping with normal nutritional requirements for the majority of the patients and for the personnel partaking of subsistence at the hospital. From this basic diet all therapeutic diets are developed. The ward surgeon prescribes the diet for each patient, whether it be a routine or special type, and the dietitian sees that the proper diet is prepared and served. The furnishing of the same menu to regular diet patients and hospital personnel on subsistence contracts is also an established policy. Just as satisfying and nutritionally adequate meals are essential to the complete restoration of the patient to normal health, so the same safeguards are considered applicable in maintaining the health of the hospital employee at a level that will ensure maximum resistance to disease.

This regular diet, totaling approximately 3000 calories, is planned to provide dietary nutrients along the lines recommended by the Food and Nutrition Board, National Research Council, for the moderately active man, but with a somewhat higher protein content than the 70 gm. recommended for the individual in normal health. Adjustments are then made in amounts served to meet the requirements and appetites of different age groups, the active and the sedentary, including patients, personnel and soldier details. As a rule, regular diet patients served in central dining rooms eat more than those requiring trays, the male patients more than the female and the World War II veterans more than those of World War I. Among the neuropsychiatric groups of patients, those on farm details or other outdoor forms of occupational therapy have heartier appetites than those on infirmary wards. Larger initial portions, often second and sometimes third servings are customary for personnel engaged in active duties and for the soldier details. In addition to having the meals nutritionally correct, effort is made to cater to the food habits, likes and dislikes of the groups served. It has been said of the veteran of World War I that he wanted meat, potatoes and coffee three times a day. Veterans Administration hospitals are now reporting that even though the new veteran of World War II also wants meat at most meals, his improved food habits are reflected in his desire for milk three times daily and his willingness to eat a variety of vegetables.

THE TUBERCULOUS

In applying the regular or basic diet to the needs in the tuberculosis hospitals, quality rather than quantity is of major importance. It is desirable to include generous amounts of animal protein and ample fat, with the amount of carbohydrate reduced proportionately so that the total calories will not necessarily exceed that for other types of patients. Other modifications to meet the needs of the tuberculous patient call for the diet to be rich in minerals, particularly calcium and phosphorus, and high in vitamins A and C. There are indications that a higher mineral and vitamin content than now provided in Veterans Administration diets would be most desirable, especially the A and C vitamins, and possibilities for further improvements to meet this need are being studied.

It has been the experience of the Veterans Administration that the patient suffering from tuberculosis presents a greater feeding problem than the general medical or neuropsychiatric patient, except in certain individual cases complicated by dietary restrictions. Perhaps the tuberculous patient's long term of confinement in the hospital, usually with enforced bed rest for indefinite periods, makes the importance of his daily meals assume mammoth proportions. Frequent visits from the dietitian are often necessary to stimulate his appetite and eliminate any dissatisfaction if, in his estimation, the breakfast eggs prove to be too soft or too hard, the soup too highly seasoned or tasteless, or the roast beef overdone. In keeping the tuberculous patient satisfied with his food, the dietitian makes an important contribution to his improvement. This factor may have a definite bearing on his acceptance of the situation he faces and his willingness to remain in the hospital for the prolonged and uninterrupted treatment that is so essential to the control of his disease and permanent cure.

THE PSYCHOTIC

Proper feeding of the psychotic patient does not differ greatly from the feeding of the tuberculous or general medical one. Emphasis is placed upon deviating as little as possible from procedures for normal individuals in the food service for these patients. Naturally a much greater proportion of this group are able to go to central dining rooms for meals than is true of the general medical and tuberculous patients. These dining rooms present a cheerful appearance with curtains, flowers and tablecloths. Radio music is available at mealtime if desired and effort is made to provide a pleasant, unhurried atmos-

phere during meals. Nurses and hospital attendants accompany their patients to the dining room and guide or assist them during the meal period if necessary, to assure that each patient eats proper amounts and kinds of food. Dietitians direct the food service in the central sections and in the ward diet kitchens, where dietetic personnel are assigned, also check all other ward food service at frequent intervals to see that food is delivered in satisfactory condition and in suitable quantity. Special diets are provided in dining rooms or on wards as required, in the same way as in other types of hospitals, but the proportion of the patients requiring therapeutic diets is less. Instead, there are numbers of infirmary type patients who are served the regular diet on wards. Such patients eat either at tables in ward dining rooms or in day rooms where chairs are equipped with tray supports. In many instances the patients are so incapacitated that the nurses or attendants must feed them at every meal. When patient details are engaged in outdoor activities on distant parts of the reservation, basket lunches are prepared and sent to them from the dietetic department. During the summer, picnics are often arranged for the neuropsychiatric patients and served by the dietetic department in the grounds provided for such recreational activities on the reservation.

THE GENERAL MEDICAL AND SURGICAL

Most of the feeding problems found in the tuberculosis and neuropsychiatric hospitals are present in varying degrees in the general medical and surgical hospitals. In this group the patient's average period of hospitalization is shorter and with regard to food the patients as a whole are easier to satisfy than are the tuberculous ones. The number requiring tray service varies from 50 to 70 per cent in accordance with the condition of the patients. All who are physically able to go to the central dining rooms for their meals are encouraged to do so, even the wheel chair cases. The latter are made comfortable in the dining room by suitable adjustments in the height of the tables. This policy is considered to have a definite therapeutic value in giving the patients a change from the ward atmosphere and an opportunity to enjoy their meals with others. Six are seated at a table and each may select his place in the section reserved for special or regular diet groups, depending upon the diet prescribed for him.

OTHER FEATURES OF THE DIETETIC DEPARTMENT

In conducting the food service in all three types of hospitals the Chief Dietitian is responsible to the Chief Medical Officer for the efficient operation of the dietetic department, and all dietary employees in turn are accountable to her for the satisfactory performance of their duties. Additional dietitians are furnished on a basis of from 1 to 100, to 1 to 150 in the tuberculosis and general medical hospitals according to the particular needs of each hospital, while the ratio in most of the neuropsychiatric facilities is approximately 1 to 500. At the present time the number of positions for dietitians in the Veterans Administration is 325.

Because its employment policy is to give preference to veterans, this organization was one of the first to feel a labor shortage when employees throughout its departments who belonged to the military reserves answered the call to the colors. Also when the draft came the dietetic departments were affected immediately since most of the employees with the exception of dietitians and a few waitresses were subject to military service. As the personnel shortages became acute in hospitals located in critical areas, some relief was provided by upgrading positions of cooks and other kitchen personnel, so that experienced employees did not accept more lucrative offers in industry. In most instances the hospitals with serious labor shortages have received details of limited service Army personnel to assist the nursing, dietetic and other departments during the emergency period.

The loss of many experienced cooks, bakers, meat cutters and mess attendants to the armed forces and industry has made more thorough instruction of employees on the job essential to satisfactory food production. In addition to the individual instruction given each new employee, courses of lectures for the food handling groups are being given twice yearly at all facilities. Special emphasis is placed upon sanitation, handling, and refrigerating of food to prevent gastro-intestinal disturbances, and upon personal cleanliness of the workers and efficient food preparation and serving techniques. Suitable films have been used to good advantage in some instances to emphasize the lectures, and plans for greater use of such films in the in-training programs for food handlers are being developed. Arrangements are also being made to provide vocational training at certain designated facilities for those veterans who wish to fit themselves for positions as cooks, bakers and meat cutters.

The shortage of dietitians to fill vacancies and new positions required for the expansion program has made necessary the institution of student dietitian training within the organization. Such a course for 18 students is in operation at the large general medical hospital at Hines, Illinois. Two other courses are in the process of establishment at this time in general medical hospitals, one in New York City and the other in Los Angeles. During the current year approximately 10 per cent of the three hundred odd positions for dietitians in Veterans Administration hospitals have been vacant at all times, thus placing heavier burdens upon the dietitians on duty.

Ranking close in importance to the Chief Dietitian's responsibility for personnel management and instruction, is her accountability for the spending of a considerable part of the hospital budget. She is expected to make careful estimates of food needs in advance and maintain raw food costs within budgetary allotments. During the fiscal year ending June 30, 1944, over 77,000,000 meals at a total expenditure of more than $21,000,000, including cost of raw food and service, were prepared and served from food supplies procured in accordance with the Chief Dietitians' requisitions. Along with most administrators of food departments, whether in civilian or government institutions, the Veterans Administration Chief Dietitians have faced many problems during the national emergency incident to deliveries of food supplies, and have had to be versatile in making last-minute substitutions in their menus. These changes have not always been economical and the food cost throughout the service has risen, but food of good quality in sufficient amounts and of reasonably satisfactory variety has been available to all hospitals. Most of the neuropsychiatric facilities are located on large reservations where gardening and hog raising provide desirable outdoor activity for the patients. During the past two years the farm output has been increased, so that more fruits, vegetables, berries and pork have been raised for station use. Likewise more canning, pickling and preserving of surplus supplies have been accomplished than ever before. Some of the hospitals in this group also operate dairies and a few raise poultry, although the latter has not proved profitable or particularly satisfactory as an occupational therapy project. Because of the shortage of personnel the prompt utilization of the farm products to prevent spoilage has often taxed

the ingenuity of the dietitians. One station reported that when a bumper crop of Lima beans was ready for use, a shelling contest was staged on the hospital lawn through the cooperation of the Chief Nurse who sent as many attendants as could be spared, with the groups of patients. When the task was finished, small prizes were awarded to the winner and the runner-up, while the dietetic department served light refreshments.

These are some of the aspects of dietetics in the Veterans Administration today that have a bearing upon the dietitian's place in the medical care and treatment of veterans of previous wars. What will be her role in the medical rehabilitation of the veteran of World War II? As can readily be understood from the contemplated increase in hospital beds, her responsibilities will not lessen. Already she is meeting the dietetic needs of the new veterans suffering from tuberculosis and neuropsychiatric disease who have entered Veterans Administration hospitals since Pearl Harbor. She must be ready for greater responsibilities as the number of patients with these disabilities continues to increase, and the general medical and surgical patients now being hospitalized by the Army and Navy begin to enter Veterans Administration hospitals in appreciable numbers. Her administrative ability must be strong, her application of scientific knowledge sure, her judgment sound, and her approach to the patients' food needs sympathetic. Possessed of these qualifications and the other attributes of a successful dietitian, she will be of maximum assistance to the ward surgeon in the patient's treatment and will assure the maintenance of hospital dietetics at a high level.

With this type of dietitian in the increasing numbers needed to keep pace with the rapidly expanding hospital program, the Veterans Administration looks forward with confidence to the effectiveness of its dietetic service as a vital part of the medical care and treatment of veterans.

Pay Cafeteria for Nurses

When a pay cafeteria was established in 1934 for staff doctors and hospital personnel many who had complained of the no-choice meals chose the same dishes from the counter and insisted that the improvement must be due to new cooks or new recipes. The psychological effect of choosing and paying for the food was amazing!

It was not until May 1942, however, that the employees' cafeteria was put on a pay basis, for in spite of the success of our first pay cafeteria there was considerable hesitation about the next venture. Because the cost to the hospital of the meal as served was less than the meal allowance to be paid out, there was some question whether the employees would buy their 3 meals a day in the cafeteria. The deciding factor was the growing belief on the part of the administration that the old-time paternalistic policy of providing meals was out of keeping with the newer practice of paying regular wages comparable to those paid elsewhere and thus allowing employees the liberty of buying meals as they chose.

The outstanding result of the new cafeteria was the great reduction in food waste. When the employees received food as partial payment for their services, they had little appreciation of its value, took some of everything and wasted much. In the pay cafeteria, the bulk plate waste per day was considerably less than that formerly collected every meal, and in addition, there was a 15 to 25 per cent decrease in the use of the following items: bread, butter, milk, sugar, cereal, eggs, meat, potatoes and coffee.

The nurses' cafeteria in the new building had been set up for a pay system, but it was not until November 1944 that this dining room became a pay cafeteria. In this case a far greater number of persons were to be served and consequently a much larger outlay of money was involved.

The first step to be considered by the dietitian in charge of food production was changing the menu setup of the cafeteria. This was done on the assumption that the salary adjustment made to the nurse would enable her to buy 3 adequate meals a day similar in content to those meals served when the dining room was operated on a non-pay basis.

In the non-pay setup the following items were offered for breakfast: one fruit; choice of cereals, dry and cooked; eggs, bacon (when available); toast, muffins, rolls; 3 beverages. In the pay system we have added choice of fruit juices, fresh and cooked fruits, and choice of eggs.

The luncheon menu formerly was made up of: 1 soup, 1 entrée, 1 salad, 1 sandwich mix, 1 dessert, 2 beverages, bread or rolls. We now offer an à la carte menu that consists of: 2 fruit juices; 2 soups—1 cream, 1 clear; 1 entrée; 1 roast meat; 1 potato; 1 vegetable; 3 salads; 1 sandwich mix; cold sliced meat and cheese (when available); 2 desserts; fresh, cooked fruit; ice cream or sherbert; bread, roll, muffin; 3 beverages.

A "special" luncheon is sold at noon that ensures the nurse an adequate, well-balanced meal at low cost: soup with crackers, entrée, salad, bread or roll, dessert and beverage. No substitutions are allowed on any "special" meal.

The à la carte menu enables a nurse who desires it to have her hearty meal at noon.

The dinner or evening meal formerly included: 1 soup; 1 meat; 1 potato; 1 vegetable; 1 salad; 1 dessert; 2 beverages; bread. The dinner meal now consists of: 2 soups; 2 hot meats (when available); 2 potatoes; 2 hot vegetables; 3 salads; 1 sandwich mix; 2 desserts; fruits (fresh, canned, cooked); ice cream or sherbet; bread, roll, muffin; 3 beverages. The dinner special is: soup with crackers; meat (sometimes a choice); choice of potatoes; choice of one vegetable or one salad; dessert (choice of these starred on menu); bread, roll, muffin; choice of beverage.

The midnight meal includes: 2 fruit juices; 2 soups; 1 entrée, 3 salads; 1 sandwich mix; cold sliced meat and cheese (when available); 2 desserts; fresh or cooked fruit; ice cream or sherbet; bread, roll, muffin; 3 beverages.

The luncheon special is repeated at the midnight meal, and tea, served from 2 to 4 a.m., is given without charge. No food is sold between meals with the exception of crackers and milk from 9 to 11 a.m.

After the changes in menu had been decided upon it was necessary to revise employee schedules because of increased production. One worker was added in the salad unit. Sales of salads and fresh fruits increased so much that schedules were planned to cover the unit throughout the entire day. Another worker was added in the bakeshop because of the variety of desserts now being served plus the increased use of ice cream and sherbets. No additional workers in the kitchen itself were needed as we found that a choice of entrées was as easily prepared as a very large quantity of one item.

The change from a non-pay to a pay basis has helped to improve the food standards of kitchen employees. They are more interested and more careful in the preparation of food they know is to be sold. New work sheets were planned for kitchen, salad and bakeshop units. These are made up from the cafeteria requisitions and list items and amounts of food to be prepared. It is the responsibility of the main kitchen dietitian to see that the food is properly prepared and that the amount ordered is sent to the cafeteria.—*Excerpts from an article by Marion D. Floyd, Ruth W. Spencer, and Elizabeth A. McCarthy, Massachusetts General Hospital, prepared for the New England Hospital Assembly "Convention-by-Mail," 1945. Abstracted with the permission of Paul J. Spencer, secretary.*

THE DIETITIAN AS A MEMBER OF A THERAPEUTIC TEAM[1]

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THE modern trend in therapy is to consider the patient as a whole personality in a social setting,[2] and to regard as significant and important every therapeutic contact with the physician, with medical or family case worker, and with the dietitian. It is realized that to obtain the best results specialists must, in addition to performing their special tasks, cooperate in a common therapeutic task—the work and skill of one complementing that of the others. The increased emphasis upon the importance of the patient's whole personality makes new demands upon the dietitian as increased knowledge shows the many ways in which specific food behavior, as well as disease pictures requiring special diets, are themselves concomitants of deep-seated personality distortions and overemphases.[3]

Just as at an earlier period in the development of dietetic practice the dietitian learned to understand the extent to which aspects of the patient's behavior in the dietetic interview might be referred to a need for attention, to a desire to show off, or to the gratification of long-denied needs for a relationship with another human being who appeared to take an interest in one's health and fate, now there is a need to integrate into dietetic practice the new findings based upon the work of psychiatrists exploring the new field of psychosomatic medicine. If this integration is to keep pace with the growing discoveries in this field it must take place not only in the professional schools as new students enter dietetics, and in the training for internships of recent graduates, but also in the established practice within the hospital and food clinic. In the professional schools young dietitians can profit by instruction from psychiatrists; in the operating clinical situation the new methods can spread best by self-aware teamwork in which the dietitian reevaluates her current procedures in the light of increasing knowledge of the patient's whole personality and takes it upon herself to communicate to her colleagues—the physician, the psychiatrist, the medical case worker and the nurse—just what the possibilities of a dietetic interview are in terms of an all-round therapy designed to meet the needs of the patient as a whole personality who emerges from the hospital to live in a real social situation.

One of the ways in which this increased awareness on the part of the dietitian may be developed is by a consideration of the different roles in which the dietitian sees herself, in which the patient sees her, and in which her professional colleagues in related professions see her. The role of the dietitian is subject to great variation in scope, from that of someone who merely works out a list of foods based upon a physician's prescription and the age and body weight and degree of activity of the patient, through to the concepts of the worker in a food clinic (a) as a specialist who can *translate* for the patient-client a *regime* prescribed by the physician into exact amounts and kinds of foods prepared in specific ways, (b) as a specialist in the relationship between food and bodily needs who can *guide* the patient-client in making a selection of foods which will produce changes or maintain a given bodily state, (c) as a specialist in all the *problems of adjustment* which an individual faces in one facet of his or her existence—the consumption of food, including budgetary problems, conditions of preparation, etc., and (d) as a *member of a team* of therapists—including the physician, psychiatrist, case worker, public health nurse—in which case the specific type of help and instruction which the dietitian gives must be keyed to the treatment being given by the whole team and oriented not only to the physical needs of the patient-client but to his whole personality.

Each of these roles, or any combination of them, has to be clear to the dietitian and to the patient, and if the referral from physician or case worker has not indicated to the patient what role the dietitian plays it is necessary for her to indicate it herself. This can usually be done best if the dietitian takes a minute to discover what the patient has been led to expect and then elaborates upon, and corrects that impression. But a clear definition of why the dietitian is there, what the referring specialist has asked her to do, and what the patient may and may not expect, is very important if the dietetic interview is to have its fullest usefulness. Roles (a) and (b) are to be very fully discussed in a handbook on diet therapy to be published under the auspices of the American Dietetic Association. The present paper is concerned primarily with roles (c) and (d).

As growing interest and research amplify the scope of the dietitian's work and bring into it an increasing knowledge of social conditions, of personality dynamics, and of the process of therapy as an interpersonal relationship, it is important that these new emphases should not obscure the dietitian's distinctive role as a specialist in the adjustment between bodily needs and eating habits. It is important that she should include in the interview as many as possible of the insights and procedures which make for a good interview, whether conducted by physician, case worker, or any other specialist in human relations. But it is also necessary that she do definite and concrete teaching about foods, the nature of the particular diet, how it may be calculated, and how the recommended amounts and proportions may be obtained within the framework of the patient's habit patterns. While it is true that in the past physicians and case workers have underestimated the general therapeutic implications of the dietetic interview and regarded the dietitian as an automatic source of information upon which the patient would inevitably act, it would easily be possible to err in the other direction and demand so much case working skill from the dietitian that

[1] This discussion draws upon materials contributed by the large group of members of the American Dietetic Association who cooperated in the project of the Diet Therapy Section on Food and Emotions during 1942–44, which was undertaken in cooperation with the Committee on Food Habits, National Research Council, and the case histories were analyzed by Dr. Margaret Mead, Executive Secretary of that Committee. Received for publication February 5, 1945.

[2] Richardson, H. B.: Patients Have Families. New York: Commonwealth Fund, 1944; also Robinson, G. C.: The Patient as a Person. *Idem*, 1939.

[3] Alexander, F.: The influence of psychologic factors upon gastro-intestinal disturbances: A symposium. A report upon research carried on at the University of Chicago Institute for Psychoanalysis. I. General principles, objectives, and preliminary results. Summarized in Psychosomatic Med. 1: 429, 1939; also Bruch, H.: Adjustment to Dietary Changes in Various Somatic Disorders. Washington: Committee on Food Habits, National Research Council, Bull. 108, The Problem of Changing Food Habits, 1943, p. 66; Bruch, H., and Touraine, G.: Obesity in childhood. V. The family frame of obese children. Psychosomatic Med. 2:141–206, 1940; and Bruch, H.: Food and emotional security. The Nervous Child 3:165; also Mead, M.: Dietary patterns and food habits. J. Am. Dietet. A. 19: 1, 1943; also Rahman, L., Richardson, H. B., and Ripley, H. S.: Anorexia nervosa with psychiatric observations. Psychosomatic Med. 1: 335, 1939; also Waller, J. V., Kaufman, R. M., and Deutsch, F.: Anorexia nervosa, a psychosomatic entity. Psychosomatic Med. 2: No. 1, 1940. Mittlemann, B., Wolff, H. G., and Scharf, M. P.: Emotions and gastroduodenal function; experimental studies on patients with gastritis, duodenitis, and peptic ulcer. Psychosomatic Med. 4: 5–61, 1942.

her necessary and distinctive teaching function would be obscured.

This distinctive character of the dietetic interview imposes definite limitations upon its form. The dietitian must teach concrete, precise material. She must, whenever possible, also convey to the patient some sense of the principles upon which her concrete teaching is based, and in practically every instance she has to persuade the patient to do something which is painful, that is, to attend, from a new point of view, to the details of diet. This is painful because in our society the conscious application of thought—especially of measuring, counting, calculating, estimating—to an aspect of life which is ordinarily associated with gratification of the senses, is regarded as reducing pleasure. Reduction in pleasure is likely to be resisted, except by those patients whose peculiar character formation makes them enjoy deprivation, and such patients will present other problems equally difficult to the therapist. However, attempts to make the following of a diet meaningful can be highly successful. The dietitian may expect the patient to feel that her advice is definitely useful if she makes the diet prescription intelligible and easier to follow, makes the goal of loss or gain in weight or a very altered pattern of intake possible of attainment, and makes the diet itself reasonably related to the patient's own bodily state and not an arbitrary set of rules. But the dietitian can *not* expect to make the following of a diet a pleasure-giving experience, and efforts to clothe the interview in such terms are likely to be disappointing. Many instances have been reported where the patient has developed a tie to the dietitian and improved in health and functioning because someone was taking an interest in him, but this usually means that the dietitian has had to overstep her role and engage in case work for which she may not have been specially trained, and at the expense of giving other patients specific dietary help.

The dietetic interview remains an interview between a specialist-in-food-adjustments and a patient-who-needs-to-learn-something-about-his-diet, and all improvements in procedure must necessarily take this core into account.

EXTENSION OF THE DIETITIAN'S SKILL IN HELPING THE PATIENT ADJUST HIS FOOD HABITS

Recognition of the importance of treating the patient as a whole personality, with a specific cultural background and real life situation, leads to the inclusion in the dietetic interview of an attempt to get some understanding of the patient's personality, what his reaction is to the diagnosis which has brought him there, what motives may be invoked in teaching new food patterns, and what special resistances have to be overcome. This preliminary exploration of the patient's personality can take place within the framework of the dietetic interview itself and need not wander to wider topics. The more knowledge the dietitian has of the human personality, the better. She needs to be aware of such special problems of childhood as the conflict between dependence upon the mother and the need to be independent which is likely to express itself strongly in the field of eating, or of the adolescent desire to be like other young people as illustrated in the following:

Extract From an Interview With a Thirteen-Year-Old Diabetic Girl

Patient had come in crying, after a two-month absence, and her tests showed sugar.

Dietitian: Why K, what seems to be the trouble? You've always had such a nice smile.

Patient: Oh, I've been hungry since school started and have eaten more than I should have—even candy sometimes. I just can't help it when all the others can have everything. I *hate* school.

D: What would you like to have to eat? We should be able to get together on this and plan your meals the way you want them.

P: Oh, *could* you? I'd love to have more bread, dessert once in a while, a little gum and candy.

D: Have you ever tried D-Zerta or candy or gum sweetened with saccharin? D-Zerta is a gelatin dessert and can be used in many ways, such as with whipped cream or with fruit. (D. conferred with doctor.) If you like we might increase the amount of insulin and your food allowance to include another slice of bread and a couple of pieces of candy.

P: Why, that will make my meals practically the same as all the other girls! That's swell!

The patient came in once a month from then on. She was happy, felt well, liked school and tests were good.

The foregoing illustrates the methods of a dietitian who responded sensitively to the evidences of distress and placed them in context against the patient's previous behavior. She estimated carefully the importance—to an adolescent—of behaving like the other girls and so evaluated correctly the phrase, "I *hate* school," treated the dietary prescriptions as flexible and capable of adjustment to a genuine need on the part of the patient, and succeeded in establishing the patient in an adequate adjustment.

Each age, each sex, has its special problems. For old age it is important to realize that the patient needs to be treated with the respect due to age and experience of life, yet protected, by written advice for instance, from a growing forgetfulness. Thus increased understanding of different regularities of this sort provides a background for a better understanding of personality.

Knowledge of the patient's cultural background—whether from a rural American home, from a foreign-born family's home, from a minority group which almost inevitably means poor housing and limited household equipment, from a home where religious usages are observed, or from a type of home where no traditional practices may be relied upon, as when mountain people of the South are transplanted to a northern or western area where all the ways of living are unfamiliar—all helps the dietitian to make her teaching realistic and relevant. The more she knows of these differences in dietary practice from one socio-economic group to another and from one nationality background to another, the surer will be her understanding of the patient's questions or probable confusions, misunderstandings, or embarrassments.

A skilled dietitian will also take into account the patient's social situation in terms of status, occupation, income and living arrangements—making specific allowance for the difficulties of the patient who lives in a cheap club for girls, the bus driver or the elevator operator, the domestic servant who is likely to nibble, the underprivileged mother of young children who is likely to skimp her own diet to feed them better, the housewife who must shop on a hand-to-mouth basis or who works and must leave the shopping to a small child, the three-shift household with its irregular meals, and the family in an overcrowded district that has only restricted kitchen privileges. Imaginative inclusion within the dietetic interview of the reality situation of the patient goes a long way toward ensuring its success and has high general therapeutic value in increasing the patients' sense that the dietitian is someone who is treating them as they really are—people with ten minutes for lunch, people who have iceboxes but can't afford to run them, people who are too poor to shop in chain stores where cash must be paid and who depend instead on credit.[4]

[4] Background materials for the inclusion in dietetic practice of cultural and socio-economic factors may be found among the materials developed at the Boston Dispensary Food Clinic by Frances Stern, at the Community Service Society, New York, by Lucy Gillett, and materials currently issued by the Massachusetts Department of Health and the Committee on Food Habits, National Research Council.

A knowledge of current prices, scarcities and abundances, of current food fads among young people, and of the trend of radio advertising—especially for children—is also important in helping the dietitian to make it seem possible for the patient to follow her instructions easily. While every physician and every nurse should understand the basic principles of nutrition, it devolves upon the dietitian to translate this knowledge into everyday practice in terms of the needs, the intelligence, the emotional attitudes and the actual situation of each patient.

THE DIETITIAN AS A MEMBER OF A THERAPEUTIC TEAM

The dietitian's functioning in the therapeutic team in hospital or clinic may be considered from three points of view: 1. Referral to the dietitian. 2. The dietetic interview or series of interviews. 3. Referral from the dietitian, or case report to some other member of the team.

Referral to the Dietitian. At present, referral to the dietitian comes usually from the physician if the need is a medical one, and from the case worker if it is a matter of home management. The physician tends to limit himself to such phrases as: "reducing diet," "low-fat diet," "high-caloric diet," "high-vitamin diet," "bland diet," and to omit any information on the patient's personality, capacity to follow directions, the role that the patient's illness plays in the patient's life, etc. Upon the hospital dietitian devolves the task of developing such a working relationship with the physician that instead of saying, "Stop in and see Miss Jones, the dietitian, and she'll give you your diet," the physician will realize the importance of an interpretative referral and say: "Now Miss X, you will need some help in planning the diet which I have prescribed for you. You'll find that Miss Y, our dietitian who specializes in helping people adjust their meals to their particular health needs, will help you work out the details." With increasingly good working relationships between other therapists and the dietitian, the physician and the case worker also come to appreciate the importance of giving the dietitian clues about the personality of the patient, namely: summaries of what otherwise would often demand many hours of contact with the patient and experience with the way he responds to different types of suggestions; warnings about ways in which the patient will try to use a relationship; and diagnosis of the role that eating plays in the patient's life—as the only available form of sense gratification, as a reaction to mood, as a method of punishing other people or the self, etc. The interested dietitian can accustom physicians to including such suggestions in their referrals. Thus the dietetic interview will get off to a quick start, the patient will be better oriented in what to expect, and the dietitian already alert to some of the patient's most conspicuous characteristics.

The Dietetic Interview. The extent to which the dietetic interview itself becomes an integral part of the treatment of a patient who, in addition to being cured of a specific disease condition or taught to keep the disease under control, is also being adjusted as a whole to a life situation, depends not only on the dietitian's knowledge of personality, but upon the knowledge of other members of the therapeutic team concerning the character of dietetic interviews in that particular dietetic department of their own hospital or clinic. Too often physicians, case workers, and nurses include in their planning for patients their picture of a dietetic interview, experienced or witnessed twenty years ago, in quite another setting. They may actually seek to prepare the patient for, or seek to adjust subsequent treatment to a dietetic interview very different from that which the patient actually experiences. This ever-present danger can be guarded against by the dietitian assuming responsibility for seeing that the other members of the therapeutic team actually know what her practice is and that of her staff, what types of alternatives are recognized in adjusting different kinds of patients to the same general dietary prescription, how much detailed instruction is actually involved, and what sorts of aids, written schedules, models, scales, slides, charts, etc. she uses. Adequate exposure of physicians and case workers to the procedure of a dietetic department will result in their raising questions about the possibilities inherent in the situation, which in turn will assist the dietitian in orienting her practice to their premises, and deepen her knowledge of the emotional factors with which she has to deal.

Referral From the Dietitian and Case Reports. As the dietitian works more in a team, the other members of which know what her special skills actually are, both she and they will recognize ways in which material gleaned in the dietetic interview may be used as an indicator of the patient's problems or progress. A series of dietetic interviews is sometimes an excellent device for maintaining contact with a patient, especially if the dietitian is alert to signs of improvement or deterioration, of indications of developing conditions—as when a problem which at first looked like simple malnutrition begins to show signs of anorexia nervosa. Attempts to fit the dietetic interview into an integrated pattern of treatment are an excellent device for focusing more attention upon the whole personality of the patient, thereby making the treatment more effective.

Trends in Nutrition Research. Today the science of nutrition utilizes the combined knowledge of fundamental and applied sciences. Nutrition research is conducted in the laboratories of hospitals, schools, agricultural experiment stations, and food manufacturers—with human subjects, animals, plants, and microorganisms—by chemists, physicists, biologists, physiologists, bacteriologists, biometricians, physicians, home economists, dietitians, sociologists, economists, and agriculturists. Scientists working in different specialties have pooled their efforts to obtain more complete knowledge of the foods we eat and of the physiologic processes that utilize them. Indeed, in its development, application, and progress, the science of nutrition embraces most, if not all, of the sciences.

At the turn of the century, students of nutrition believed the digestible parts of natural foods consisted only of protein, carbohydrates, fats, and minerals. . . . During the next two decades "vitaminology" was born and flourished. Because of their practical significance, vitamin discoveries stimulated the most intensive period of biologic research of all time, heralding "the science of man" which is being so intensively and successfully pursued today. Also during the past twenty years the term "minerals" has been recognized as including some 18 to 20 materials essential for the development and maintenance of health body structure. Essential fatty acids, hormones, and other constituents contribute to physiologic activity and intermediary metabolism.

It no longer suffices to know that healthy human bodies of a certain age can assimilate a maximum or minimum amount of calcium, will not grow without a definite amount of phosphorus, or will show symptoms of deficiency without adequate vitamin intake. . . . Today we know that an adequate intake for one child may be inadequate for another, that at different ages and in different climates requirements may differ, and that physical status, mental health, and past experience may influence body needs. . . . Likewise, it is becoming increasingly urgent that we know more fully the variations in nutritional requirements coincident with and consequent to all forms of morbidity. . . . Today, nutrition research on man faces the task of determining nutritional requirements on the basis of total intake of all essential materials. The requirements for "materials" must be translated into terms of food, food handling, and healthful living, include provision of "safety factors," yet avoid waste. They must be established for infants, children, adults, and the aged; for the sick, the well, and the handicapped; and for different races and climates.—*Macy, I. G.: Trends in Nutrition Research and Application, Nutrition Reviews, 3: 97, 1945.*

SEEN IN NORTH CHINA

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BEFORE Pearl Harbor, I had been teaching in Yenching University, on the campus outside the ancient walled city of Peking. Internment was the fate of all civilian enemy aliens in that North China country, but in the first months was not too drastic. Finally, in late winter of 1943, official notices arrived asking us to prepare to go to a Civilian Assembly Center, to pack two small trunks with useful articles, to crate one bed, and to arrange hand luggage we could manage ourselves.

Many of us were not too averse to leaving Peking, for food was becoming more and more scarce, prices were rising to dizzy heights, and we, with our small monthly doles received through the Swiss representatives, were quite helpless and unable to do much for our many Chinese friends, our former associates and helpers. We were learning about the importance of food—the simplest food—to keep body and soul together. The masses in North China long ago developed a workable agricultural economy: the sensible production and use of grains like corn, millet, grain sorghum and wheat for the main part of the diet, along with legumes and vegetables which of course contributed protein, minerals, and vitamins, but hardly at optimum levels. Foods of animal origin the Chinese love, and use skilfully in their cooking. But even in normal times meat, fish, poultry and eggs are used in quantity only by the rich or for special feasts. In those early months of 1943 we saw it become more and more difficult for a workman to secure merely grain products to feed himself and his family. Inflation of the currency, newly erected trade barriers, and military commandeering of farm crops were only part of the story. Suppose you normally eat corn meal or millet, none too well supplemented with other plant products, and suddenly these supplements are practically impossible to obtain and your daily earnings no longer seem enough to buy even the grain that you and your family desperately need. What then would you do? There are various ways out—some we would rather not think about. How we longed for a few bushels of corn, or a bag of soybeans, or wheat from the bins down on the farm! But it was like wishing for the moon. It was a situation you may never meet, I hope—where a couple of hundred pounds of corn meal would have made a princely gift—where a few bags of flour or rice or millet meant wealth. So you see, in a way it was better not to be about, since we could only look on and could do nothing to help.

We were taken off to a Presbyterian Mission Compound at Wei Hsien, Shantung, where some 1800 persons had been rounded up from all the North China area—Americans, British, Canadians, Australians, New Zealanders, Dutch, Belgians—young and old, Catholic and Protestant, business people, religious workers, educators, scholars, writers, engineers, medical men, and so on. I will try to give you those of my impressions which would be of most interest to you as dietitians.

First was the matter of essentials—essentials for living. We have all heard that adequate food, clothing, and shelter are essential to health, but not before these experiences in the Far East did anything like the full implication come home to me. And of these, the problems of food, its preparation and service, were foremost. Food was provided by the Japanese and issued daily by their supply officer (Mr. Gold Tooth, if I may use the nickname applied by our men, who took advantage of the fact that he knew no English!) on a per capita basis to the three kitchens and the hospital which fed the 1800 internees. Preparation was then up to us in our own kitchens—subject to certain limitations!

Our food service, of course, was limited very definitely by the kind and quantity of supplies issued. Never will I forget the day that we were confronted by about three bushels of frozen cuttlefish. I was on the fish-cleaning crew just being organized, for that was in the cold March days of our first week in the camp. Cuttlefish meant to me only a curiosity in biology laboratory—a clever little diminutive octopus that squeezes quantities of black inky material into the water to throw pursuers off his trail. But the cuttlefish had to be cleaned and we had to eat them, else the Japanese might think we were scorning one of their choice offerings. Fortunately, one of the good Catholic sisters said she knew how to attack these creatures, and all that raw March morning we worked and cleaned the lot. But a good serviceable coverall apron, a farewell gift of Peking friends, thereafter bore the mark of cuttlefish stains.

After that, fish arrived at intervals, but no more cuttlefish. Meat was issued regularly and some eggs. We had almost no fruits but vegetables common in North China saved the day as contributors of vitamins and minerals. I must confess, however, that even those of us who respected vegetables for their nutritive value sometimes grew a bit tired of the same kinds day after day. We were certainly glad to see the last of the *hao-tze-kan*, a kind of leafy vegetable a bit like chrysanthemum, sent in regularly, long past the season, when the stems had become thick and woody, the leaves overly mature. The internees all grumbled at whatever soup or stew we made of it. White flour for bread we had in abundance, so that we found ourselves eating more than ever before in our lives. But all this I have told you before, in connection with our dietary study.[1]

Of the three meals, breakfasts were worst of all—bread and tea or hot water being the main items available. Sometimes there was an issue of butter of sorts, or a kind of jam. And we achieved our so-called Wei Hsien porridge: made of bread boiled in water, with perhaps a bit of sugar and minced orange peel added for flavor—orange peel carefully salvaged from the few precious oranges now and then available in the camp canteen. There were those who could not eat Wei Hsien porridge, but most of us liked it better than plain bread.

Calcium deficiency we suspected after being in camp only a few weeks. The dietary survey confirmed our guess. But we found a way to remedy the matter, for children at least.

We had been told in Peking that the Japanese would supply food with items suitable for children, invalids, and so on. Some of us did bring bone meal as a calcium supplement. Dried and tinned milks had been incredibly expensive in Peking. There was no opportunity to pick up anything like a long-time supply. So our group possessed little in the way of calcium supplements.

In the camp there were dairy cows, but these produced altogether an average of only 30 gal. milk per day. Fortunately the authorities allowed this milk to be sent to the little hospital on the compound where our medical people pasteurized it before distribution to the pregnant and lactating mothers, young children, and patients in the hospital. The larger children rated almost no milk, ex-

[1] Internment Camp Food in Occupied China. Page 213, this JOURNAL for April 1944.

cept on rare occasions when a sign on the bulletin board would read, "Eight to ten-year-olds report at the hospital today. Each will receive one cup of milk."

Most of us gave our small supplies of bone meal to the hospital, but that helped only for a short time. We could not make bone meal, since the meat arrived boned. So we started our eggshell project with volunteer labor. First there was the collecting of eggshells, mostly from black market breakfast eggs. Then every morning, from 9 to 12, a group of women washed the eggshells and removed the tough membrane. The clean shells were then dried in the sun, then ground and powdered by hand. The captain of the grinding project was a tall, successful British businessman who before Pearl Harbor had more or less retired with a comfortable income. One of his assistants was an earnest little Belgian priest, with a long white beard, who was always attired in a plain, black robe made Chinese-style. The other assistant was equally earnest—a Canadian gentleman who for years had been a Protestant missionary to the Mongols. The three toiled together to make powdered eggshell for the children of the camp, their improvised equipment so inefficient that the work was slow, but the product was sufficient to supply all those who came weekly for the quantity estimated as desirable. The parents then had the job of slipping the supplement into the soup or stew of their offspring.

We who started the project sometimes wondered about the effectiveness of our product, but had no way to test it. Imagine how pleased I was on my return to Kansas State College when the head of the Department of Poultry Husbandry told me that of course eggshells are a good source of calcium. "The main problem in using them" he added, "is that of labor." That we had—interested volunteer labor—provided by people untrained in nutrition and dietetics, but concerned about the welfare of the children of the camp.

Necessary sanitary precautions greatly limited our food preparation. Sanitary provisions were poor. None of the wells on the compound produced water safe to drink without boiling. There was also a fly hazard for until well into the summer, kitchens and dining rooms were unscreened. Bluntly, our doctors said, "We will have a lot of grief over dysentery unless we take every possible precaution. No uncooked foods may be served from the kitchens." A little hard, when crisp cucumbers were issued, or beautiful red and white radishes, or cabbage! But necessary, of course.

Next came limitations of equipment. Our kitchen, from which about 420 persons were fed, possessed four huge iron kettles (*kwa*) built in with bricks and mortar and arranged to be fired from underneath. Two of these had to be devoted to the ever-pressing need of boiled water—enough to serve hot water or hot tea to our thirsty host at mealtime, to wash and scald the dishes of the internees as they emerged from the dining room after meals, and to fill the thermos flasks and water bottles. The other two *kwa* were available for soups or stews or more ambitious concoctions like pot roasts or noodles. But there was no easy way to regulate the temperature of the fire under the *kwa*—no way to turn off the heat quickly when you were finished. You dared not empty the soup kettle completely as long as the coals smouldered underneath, for a cracked pot would be no small tragedy. So you can see why the last servings of soup were more and more watery! Eventually we had more stoves concocted of bits of scrap iron and bricks picked up about the place by some of our ingenious internees, somewhat after the fashion of the open-air stoves in our middle-western parks. How these new stoves increased the variety of our menus! We daringly attempted meat cakes, French toast and even browned hash! To be sure the cooks got smoke in their eyes, and the stoves were not really efficient, but we achieved something different.

All equipment was limited. The best of the few paring knives and long bread knives or butcher knives provided by the Japanese were naturally commandeered by our meat cutters and bread-slicing crew. The meat cutters had to contend with the miscellaneous cuts of boned meat (usually beef) which daily arrived un-iced from a Japanese abbatoir. The bread-slicing crew also deserved better than our best, for they had to slice by hand the bread for our hungry 420, who, we learned, were thus securing about two thirds of their calories; the vegetable crew, with whom I often worked, used the remainder of these knives, plus whatever knives we might happen to have in our dinner bags.

Each morning and each afternoon the women assigned jobs on the vegetable crews were to be found assembled under the trees behind our kitchen, peeling potatoes, shredding cabbage, or what not. One item, there, particularly useful to the vegetable women, would make you laugh: a huge, old-fashioned bathtub, used for washing vegetables! The Japanese had pulled it out of one of the ex-faculty residences on the compound which they took over to make quarters for the guards, who no doubt preferred the little Japanese wooden bathtub. At any rate, the big white enameled affair was on the dump heap, and our men, quick to seize any bit of equipment which might be of use, bore it triumphantly to our vegetable center. They blocked it up to make a better working height and there we were—ready to wash vegetables. Much spinach have I washed in that bathtub—not to mention "small cabbage" or *hsiao pai-ts'ai*, bean sprouts, potatoes, cucumbers, and radishes. After all, splashing in the cold water was not too bad on a hot Shantung day.

But our group left the camp in September. And all last winter I wondered how the vegetable women were managing on cold days. Now another winter is with us; how are the 1400 people still in that camp preparing the vegetables? Each time I see one of our efficient potato peeling machines, I think of the hours spent peeling potatoes around a big old table under the Chinese locust trees. To be sure our way meant that you learned to know people. You could not work alongside half a dozen good Dutch nuns on the potato detail for a week without becoming better acquainted. We communicated in Chinese—very poor Chinese on my part. But we learned that they had been operating a school for Chinese girls (orphans mostly) in one of the mountain provinces, and that the sisters had started orchards so that there might be fruit for the orphans, and gardens to produce vegetables. There were even cows, for are not the Dutch people well aware of the merits of milk?

When I see one of your shining bread-slicing machines I think of our internees, toiling over great piles of bread, every day and every meal, to fill the many bread baskets with slices for hungry men to whom bread literally became the staff of life. And in our little stuffy meat room—how the men would have loved a big grinder—for they felt lucky to have at hand three little household size food grinders which internees happened to have. But imagine being thus obliged to produce meat cakes for the 420 of our Peking group! Not that our servings of meat were large. Far from it. But rather tough and not easy to grind.

Now and then our Peking kitchen achieved something very special, for instance, pumpkin pies, or what passed for pumpkin pies. The brick ovens ordinarily used for the baking of bread for the whole camp were to be empty one afternoon and one of our men, a foreman in the bakery, hurried over to report and to urge, "Why not get some

volunteer help? We'll have pumpkin pies for supper tonight." Squash we had, for the Japanese had been sending in quantities of some of the good North China varieties. Flour was plentiful, for at that time the authorities seemed to have it in unlimited amounts. Fat we required, and I remember skimming it off the great kettle of simmering soup. We used every bit of fat available—there was no salvage fat! Some sugar had been issued, as well as eggs. The last item was supplemented by private supplies obtained on the black market—over-the-wall products. We had a little fresh ginger to be minced and added, along with a bit of donated cinnamon. Of course good pumpkin pies call for milk and cream, but a couple of big-hearted internees produced powdered milk from their little hoards. We all brought our enamel dinner plates to use for pie tins, and the carpenter shop made rolling pins. But we *did* achieve pumpkin pies of sorts—about 100 of them, so that each member of our group could have a fine, big wedge. As the pies baked, internees passing on the camp street outside the bakeshop sniffed and sniffed. Wonderful odors! The Peking kitchen serving pumpkin pies tonight? How could they manage it?

I do not need to tell you that it was good for our morale to make those pumpkin pies. And there were other examples in abundance. We were not greedy, I hope. But food does help. There might be news that Harry's birthday comes tomorrow. "Meet at 4 o'clock on the stone bench under the big elm trees. We are getting up a little party." We made sandwiches with bread from the dining room; a hoarded jar of jam appeared. Perhaps coffee and sugar and even a little tin of almost priceless evaporated milk. The salted almonds presented as a farewell gift on leaving Peking would be brought out. You would scorn our delicacies: the melted, strong, tinned butter, the Japanese brand of tinned milk. But the food tasted wonderful to us; we sat about and talked, and joked. We relaxed a bit, and began to think that life was really worth living after all.

But I hope you will never need to go to a Japanese Civilian Assembly Center to understand what a bit of food—a little party—can do to give courage and improve your point of view. This is only one of the reasons why I keep wishing I could do something for my friends in North China—for those in camp, and for our Chinese friends as well. How I would like to fill a magic carpet with the corn meal and flour and soybeans the Chinese were struggling to obtain! And also with some of the protective foods they would love, protective foods they have been needing so much the last two years. How long can they make out? I wonder, and wonder.

An Interpretive Report of the 27th Annual Meeting, American Dietetic Association

The American Dietetic Association is one of the most important professional organizations with which business is given the opportunity to cooperate. Its importance is frequently misgauged by those unacquainted with the organization; too often its membership is considered to be constituted largely of the highly professional technical dietitians and nutritionists. As a result, its power community-wise in the dissemination of broad public relations information is overlooked . . . the American Dietetic Association membership is made up not only of technical and clinical dietitians and nutritionists, but administrators in the food field (whose purchasing power alone is tremendous), leading educators of colleges and universities in the home economics field, the fast-growing group of industrial nutritionists, . . . nutritionists doing community education work and last, but not least, a good representation of home economics women in business. To those who have worked with the organization for a long time, it is known as an important prestige group, not only because of the calibre of its membership, but because its members hold prestige positions in the community where their influence is felt and the information relayed by them to the community is given extra credence because it stems from a person of professional prestige.

To those of us in business, one characteristic of the Association has been its outstanding attitude of cooperation with business. . . . An example is the manner in which exhibits at the national convention are handled. The exhibitor is never made to feel that he is in any way an "outsider." Rather is he an "honored guest" of the Association. . . . Without question, those firms who have regularly exhibited at many of the professional and educational conventions will always rank the American Dietetic Association as the Number 1 most worthwhile spot. . . . The whole attitude of the registrants at the Association's 1944 convention was summed up in a comment by a Chicago newspaper reporter: "These people actually seem to come to conventions to work." Not only were the general meetings crammed, but the small workshop conferences, timed to the special interests of special groups, were well attended. The program covered the gamut of subjects pertinent to the intelligent feeding of people—from patients in the hospital to the inhabitants of liberated countries. Naturally there was great stress upon nutrition by speakers from the research and medical fields. However, the importance of agriculture to our economy, management problems including employee relations, the problems of feeding the armed services, the responsibility of interpreting nutrition in molding better food habits, new methods of processing food, industrial feeding problems and school lunchroom management—in short, all subjects vital to the broad picture of feeding the public were covered. In fact, in comparison with previous programs, there was less stress on the purely scientific aspects of nutrition than on the specific administrative problems which the dietitian confronts. Perhaps the most significant thing about this meeting was the fact that most of the scientific reports had directly practical applications.

One of the outstanding trends indicated by this meeting, in the opinion of this reporter, is the growing recognition that the science of nutrition is not a thing apart—but a down-to-earth subject which has wide practical application. Test-tube nutrition is relegated to the laboratory and when nutritionists themselves so relegate it—then the interpretative method and popularization of this subject is really "on the way."

Interesting, too, is that this professional group is no longer immersed only in their own specific problems, even though these problems are heavy—rationing, labor shortage, training of more dietitians to meet the greatly expanding demand . . . their interests and influence are extending into the whole food picture, not only in our own country, but to some extent internationally. For this reason, they will be exerting an even more important influence on the public—and therefore are of vital interest to every industry that is concerned with products or equipment they use. Their minds are awakened to broader fields and receptive to new ideas. If, however, we hope to win their interest and impress them with our messages, then we must remember that they are professional people and our messages and promotions must be geared to their thinking so that we can keep their interest in the coming years as industry returns to peacetime production. . . .

Any propaganda that good nutrition is solved solely by adequate income would have a hard time standing up against the evidence produced at this meeting. . . . That faulty food habits can be changed for the better was strongly indicated by reports of representatives of industrial feeding plants, the Army and Navy, wartime feeding agencies, and managers of school lunchrooms and nurseries. The general conclusion is that adults and children alike quickly accept nutritionally well balanced meals when they are composed of well prepared foods and presented attractively (the practical approach, again!).

Between the lines of every speech lay the idea that more and better public education in nutrition is essential; that this education should be directed principally to the people who prepare and serve the meals; to homemakers; to restaurateurs and to industrial feeding managers—and that preparation and service of foods should be stressed as well as selection, since retention of food values and acceptance of the finished product are fully as important as the original selection.

This professional group has gone practical. Will business and industry and the advertising profession be as direct, as modern, as practical in the presentation and promotion of products?—*Excerpts from a report by Flanley and Woodward, "The Woman's Angle in Public Relations," New York, distributed in January 1945 to all member companies of the Grocery Manufacturers of America. (Mabel Flanley, senior member of the above firm, was formerly a hospital dietitian.)*

THIAMIN CONTENT OF JAPANESE SOYBEAN PRODUCTS[1]

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IN VARIOUS parts of the Orient the soybean is utilized for a number of food products unfamiliar to the western world. It is commonly used as a flour, combined with flours of other cereal grains, in Northern China only (1). Throughout China and Japan or wherever nationals of these countries have migrated and live in any considerable number, soybean curd is manufactured on a commercial scale. The several types of soybean curd (*tou fu*) prepared by the Chinese are quite different from the Japanese product (*tofu*). The latter looks somewhat like the fresh curd of cottage cheese. However, it contains more water (84.7 per cent) and less protein (9 per cent) than cottage cheese (2).

In making soybean curd from soybeans, Oriental people have evolved a method of producing a food of relatively high protein content with little carbohydrate and no crude fiber which increases the coefficient of digestibility of the protein. The average coefficient of digestibility of protein of legumes is only 80 per cent, whereas the coefficient of digestibility of the protein of soybean curd is similar to that of animal protein (3, 4).

But little data are available on the thiamin content of soybean curd (5, 6) though much work has been done in the United States on the thiamin content of soybeans in both the fresh and dry states (7). The yellow variety in the dry state is reported to contain about 1000 mcg. thamin per 100 gm. However, the effect upon the content of thiamin and other water-soluble vitamins when the soybeans are made into curd seems not to have been investigated.

This paper summarizes a study of the thiamin content of soybeans cooked and uncooked and of some of the products made from them.

EXPERIMENTAL

The products studied are listed below, with a brief description of each and in some cases statements of the ways in which they are commonly used. More detailed data relating to these products appear elsewhere (2).

1. Soybeans, raw (soaked): Each week beans were obtained from the factory making the soybean curd, and were prepared twice each week by soaking cleaned beans for about 17 hr. in sufficient tap water to cover. Any surplus water was drained off and the beans were kept in covered jars in the refrigerator until utilized.

2. Cooked soybeans: The beans were cleaned, washed, and cooked without soaking, in a pan in the pressure-cooker for one hour at 15 lb. pressure. If any liquid remained in the bottom of the pan, it was evaporated by placing the pan over a low flame, stirring the beans constantly. The product, prepared once each week, was cooled and stored in covered glass jars in the refrigerator until used.

3. Soybean "milk" (*tonyu*) was prepared at the factory as follows: The beans were soaked in water for about 8 hr. and crushed between revolving millstones, the mass being mixed with about three times its volume of water during the grinding. The liquid mass was brought to the boiling point, some cold water added, and the mixture again brought to the boiling point. It was then strained through a heavy cloth bag. The part that remained in the bag is called *kirazu*. The strained liquid (*tonyu*) was obtained fresh from the factory twice each week and kept under refrigeration until used.

4. Soybean curd residue (*kirazu*) is a coarse, faintly yellow product containing 3 to 4 per cent fiber, 4 to 5 per cent protein, and more than 80 per cent water. It may be used for human food in combination with vegetables, fish, or dried shrimp, and seasonings. However, in Hawaii most of the *kirazu* is fed to pigs.

5. Soybean curd (*tofu*): The soybean milk prepared as in item 3 above was mixed with a liquid containing magnesium and calcium sulfates, a by-product obtained in the manufacture of salt from sea water, which precipitated the protein as a flocculent curd. The mixture was poured into a wooden frame lined with cloth and the curd subjected to pressure for about one half hour. When the curd was set, it was cut into 3-in. cubes weighing approximately 1 lb. each and placed in a tub of fresh water until sold.

The fresh product was purchased twice each week. A block of *tofu* was put in a covered can, brought to the laboratory, and placed in a refrigerator for about 3 hr. The water which drained from the block of *tofu* was discarded. The *tofu* was mashed and mixed thoroughly and used for sampling.

6. Water drained from *tofu*: the yellow-colored liquid that drained out when the curd described in item 5 above was subjected to pressure.

7. Fried soybean curd (*aburage*): a bean curd which resembles *tofu*, but which was prepared in a slightly different manner, was cut into triangles and fried in deep fat until a delicate brown. *Aburage* is a much drier product than *tofu*, containing about 50 per cent water. It is used in combination with vegetables, rice, fish, and *shoyu* (soya sauce).

8. Fermented rice and soybeans (*miso*): This product, both as a condiment and a food, is a great favorite of the Japanese and is used for soup, or with vegetables and fish, and in pickling a number of vegetables. The exact method used in manufacturing the particular sample used was unknown, but *miso* is commonly prepared in Hawaii as follows: Yellow soybeans are soaked overnight, cooked in large vats for 4 hr. and cooled. *Koji*, fermented rice, is prepared by mixing cooked rice with dry spores of *Aspergillus oryzae* and allowing the mass to ferment under certain controlled conditions. Varying proportions of cooked soybeans, *koji*, and salt are mixed and the product allowed to ferment in huge wooden vats for 2 mo. or longer.

The thiamin was determined by the biological method described by Miller (8). All products except the *aburage* were assayed, using one large group of rats after having first depleted them of thiamin. Preliminary experiments indicated the need for feeding relatively large supplements of *aburage* and the final assay was made with redepleted rats which would readily consume 5 gm. of the product.

RESULTS AND DISCUSSION

The results are summarized in Tables 1 and 2.

Instead of preparing a meal with which to test the thiamin content of the raw beans, a product which the rats would readily eat was prepared by soaking the beans long enough to cause them to swell and soften. From these experiments it is calculated that in the dry state the soybeans contained approximately 835 mcg. thiamin per 100 gm.

The weight gains of the rats fed cooked soybeans were

[1] Published with the approval of the Director as Technical Paper No. 121, Hawaii Agric. Exper. Sta. Received for publication September 1, 1944.

[2] The author wishes to acknowledge the technical assistance of Kisako Yanazawa and the cooperation of the Yokoyama Tofu Factory.

very erratic and although the rats ate the supplements well, the mean gain was less than was anticipated in view of the published results for other types of cooked beans. The cooked soybeans prepared as described contained only 107 mcg. per 100 gm., or the equivalent of 214 mcg. in the dry state. This loss of about 75 per cent as a result of cooking is much greater than has been reported for thiamin or other water-soluble vitamins when other varieties of dry beans are cooked (7, 9, 10). No reports could be found in the literature on thiamin losses in soybeans when cooked. Probably the soybeans would have lost less thiamin if they had been soaked overnight and cooked for a shorter period in the pressure-cooker. The relatively long period of cooking in the pressure-cooker without prior soaking may have been responsible, as the experiments reported by Lantz (10) indicate relatively larger losses of B vitamins when pinto beans are boiled without soaking, than when cooked after soaking. Most soybean varieties require a longer period of cooking than do navy or kidney beans and an hour's cooking in the pressure-cooker at 15 lb. pressure was necessary to produce a well-cooked, palatable product.

It was difficult to obtain exact measures and weights from the *tofu* factory as they follow a rule-of-thumb method, but a careful estimate indicated that about 11 lb. *kirazu* and 11 gal. *tonyu* were obtained from 11 lb. beans. (In metric terms, 1 kg. dry beans yielded approximately 8.3 lit. soybean milk and 1 kg. soybean curd residue.) Using the thiamin values for dry soybeans, and those for *tonyu* and *kirazu* (Table 2), it can readily be determined that the loss of thiamin as a result of grinding, cooking, and straining the beans was about 7 per cent.

The factory estimates that it takes 11 lb. of dry beans to yield 30 blocks (approximately 30 lb.) soybean curd. Again by simple calculation it may be shown that only about 20 per cent of the thiamin in the beans is retained in the *tofu*. It was not possible to determine the exact amount of water that drains from the pressed *tofu*, but since the water collected showed a higher value per 100 cc. than the *tofu* and since thiamin is so readily soluble it is not surprising that the *tofu* itself retains so little. *Tofu*, while usually eaten the day it is made, is kept submerged in water after it is prepared, in the store and in the home, and very likely loses considerable thiamin under such conditions.

If thiamin is lost, probably the other water-soluble vitamins are also. The water which drains from the pressed curd, and even from a block of *tofu* when it is allowed to stand, is yellow in color, resembling the whey of milk, which suggests that it probably contains a considerable quantity of riboflavin. One third of a block of *tofu* is usually considered an average serving and since that amount would yield approximately 80 mcg. thiamin, it would make only a small contribution to the daily allowance of this vitamin.

The soybean curd residue (*kirazu*) retains about 20 per cent of the original thiamin of the beans or approximately three times more than the curd, but is used as a human food to a very limited extent.

The loss of thiamin when soybeans are made into soybean curd appears to be somewhat comparable to that occurring when other natural foods are processed for human consumption, *i.e.*, the milling of wheat to produce white flour, and the roasting of peanuts.

When soybean curd is fried in deep fat to make *aburage*, still more of the thiamin is lost so that the product as eaten has but negligible quantities of this vitamin.

Miso, made from cooked soybeans and fermented rice, is a relatively good source of thiamin, about 130 mcg. per 100 gm. However, a smaller weight of *miso* than of *tofu* is commonly consumed daily by those who favor these foods, consequently its contribution of thiamin to the diet would probably be no greater.

Since the proportion of soybeans to *koji* in the *miso* sample tested and the thiamin content of the original lot of soybeans were both unknown, it is not possible to estimate the loss of thiamin in this product. The thiamin content of *koji* has not been determined and although it is commonly made from highly polished rice, it is conceivable that as a result of the fermentation process with *Aspergillus oryzae* the thiamin content may be augmented.

The data presented show that when yellow soybeans are made into products commonly used by the Japanese and others in Hawaii, they lose much of their original thiamin (and probably other water-soluble vitamins as well). Judged by these experiments, it cannot be assumed that a diet containing soybean products is high in thiamin simply

TABLE 1

Summary of the results of feeding soybeans, soybean curd, and by-products to rats as the sole source of thiamin

DAILY SUPPLEMENTS	NUMBER OF ANIMALS	AVERAGE WEIGHTS			MEAN GAINS		THIAMIN PER 100 GM.
		At start	At depletion	Final weights	In 3 weeks	Standard deviation	
		gm.	*gm.*	*gm.*	*gm.*		*mcg.*
None	17	42	76	54			
Thiamin, 3 mcg	18	42	76	112	36 ± 1.4	5.9	
Soybeans, raw (soaked), 0.9 gm. = 0.4 gm. dry	13	42	75	113	38 ± 4.3	15.4	359 (= 835 dry)
Soybeans, cooked, 1.5 gm. = 0.75 gm. dry	12	40	70	89	19 ± 4.0	13.7	107 (= 214 dry)
Soybean "milk" (*tonyu*), 5 cc	13	41	73	115	42 ± 4.3	15.4	75
Soybean curd (*tofu*), 5 gm.	13	42	71	104	33 ± 2.5	9.1	54
Soybean curd residue (*kirazu*), 2.5 gm.	13	41	73	116	43 ± 4.2	15.0	155
Water drained from *tofu*, 3 cc.	12	41	72	94	22 ± 3.5	12.1	60
Fermented rice and soybeans (*miso*) 3.5 gm.	13	43	75	123	48 ± 2.2	7.9	133
Thiamin, 4 mcg. (second depletion)	20	105	102	148	46 ± 2.7	12.1	
Soybean curd, fried (*aburage*), 5 gm.	10	102	100	111	11 ± 1.3	4.4	32

TABLE 2

Distribution of thiamin in soybeans and soybean products

ITEM	THIAMIN PER 100 GM.	YIELD OF PRODUCT PER KG. BEANS	TOTAL THIAMIN	APPROXIMATE THIAMIN RETAINED
	mcg.		*mcg.*	%
Soybeans, raw	835	1 kg.	8350	100
" , cooked	107	2 kg.	2140	26
Soybean "milk" (*tonyu*)	75	8.3 lit.	6220	74
Soybean curd residue (*kirazu*)	155	1 kg.	1550	19
Soybean curd (*tofu*)	54	2.73 kg.	1457	18

because soybeans themselves are a good source of this vitamin.

SUMMARY

Tofu, a Japanese soybean curd, prepared in Hawaii and much used by many racial groups, was found to contain 54 mcg. thiamin per 100 gm.

Although making soybeans into soybean curd (*tofu*) produces a product of low-fiber content and a good source of low-cost, good quality, highly digestible protein, the *tofu* retains less than 20 per cent of the original thiamin of the soybeans from which it is made. About 7 per cent of the thiamin appears to be destroyed by the cooking process, and about 20 per cent remains in the residue (*kirazu*) from which the soybean "milk" is squeezed. The remainder of the thiamin (almost 60 per cent) is lost in the discarded liquid which drains off when the protein is precipitated and pressed.

Aburage (a fried soybean curd) loses additional thiamin as a result of the cooking process.

Miso (fermented rice and soybeans) contains more thiamin than *tofu* but since relatively small amounts are used even by people who favor this food, its contribution to the daily thiamin need is not great.

Cooking unsoaked soybeans in the pressure-cooker for 1 hr. at 15 lb. pressure caused destruction of about 75 per cent of the thiamin.

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Dining Room Management in a Pay Cafeteria

Three different groups are fed in the pay cafeteria: charge customers—the student nurses; credit customers—the employees receiving a meal as part of their salary; and cash customers—graduate nurses. It was necessary to devise some way in which all of these people could go through the same line and be taken care of in as simple and similar a way as possible. We decided upon our present system with the assistance of the nursing school and a representative of a local ticket company. We have a ticket book valued at $5 containing 25, 10, 5, and 1-cent tickets, which is used by our charge customers and any graduate nurses living in the hospital who have chosen to stay on a non-pay basis. All people in this group receive six books monthly.

At the same time we purchased a similar book with a different cover and a distinguishing line across the tickets to be sold for $5 each to cash customers. Because the cashiers found it difficult to differentiate between cash and charge tickets all cash customers must now pay in cash. However, because of the demand for these books, it is hoped we can return to the system later.

The third group, the credit customers, consisting of volunteers as well as paid employees, use a punch ticket similar to those used in commercial cafeterias. These tickets are issued by the department head who endorses and dates the back of the ticket as well as checks the meal to be received. Each meal has a maximum value to the user. All food taken over and above this ceiling must be paid for in cash.

With so many different methods of paying for meals it was impossible to have the same person act as food checker and cashier except at the midnight meal. A small numbered check was therefore used in tray pricing which is done by the checker. After placing soiled dishes on the shelf opening to the dishwashing room, the customer proceeds to the cashier's desk situated at the dining room exit.

We ring up cash and ticket sales separately so that we have a cash house count and sales total, and a ticket house count and sales total. The punch tickets are not rung up in the machine but are totaled and tabulated at the end of the meal, thus charging the proper units for the meals eaten. A machine to count the tickets, usually some 1600 per meal, is being constructed but has not been perfected. This machine will also ink the back of each ticket to void it. A safe has been installed in the cafeteria in which the cashier deposits money through a slot. The head cashier then opens the safe, checks the money, and deposits it in the hospital cashier's office.

In order to serve a more varied menu under this pay system it was necessary to rearrange our counter setup. The limitations of the counter itself somewhat controlled the menus. Changing the cafeteria to a pay dining room did not necessitate changing the serving periods, but did require more employees to give the efficient and courteous type of service required. We have added another full-time dietitian, and approximately half of the supervising dietitian's time is given to this unit. One additional full-time and 3 additional part-time counter girls were needed. The total force includes 12 full-time and 8 part-time counter people, 10 dishwashers, and 5 cashiers and checkers.

In place of the blackboard formerly used as our menu board, we now have two à la carte boards and a "special" board. Small signs are used for cold meat and cheese trays, and plastic price signs for all cold items. As yet we have not been able to obtain any appropriate signs for hot food pricing. Menu boards are made up between meals by food checkers from the priced menu. The student dietitians are assigned to portion and yield studies to keep our pricing up to date.

All food is issued to the cafeteria by requisitions, made out by the dietitian and priced in one-day sets by the cost clerk. After the costed recipes and pricing have been checked by the dietitian in charge, they are sent to the dietitian on duty in the cafeteria so that she may be assured that her charges are correct. The total of the day's requisition sheets is entered in the daily cost book.

At the end of the month these daily totals are added and the monthly food cost figure is given to the accounting office along with the house count and credit income figures. From the compilation of these cafeteria figures and the labor and overhead charges received from the accounting office, the store dietitian makes out the profit and loss statement. This shows how the cafeteria food dollar has been spent, dividing it into labor charges, overhead expenses, and food cost. The cafeteria pays all its own expenses, except rent for the cafeteria space, plus its portion of the labor and running expenses of the units which service it. The cafeteria pays a monthly fixed charge for the physical equipment which the hospital installed in the unit. The profit and loss statement makes an excellent work sheet from which the dietitian can obtain raw and served food costs, and figure the relationship of raw food cost to selling price and labor cost.—*Excerpts from an article by Marion D. Floyd, Ruth W. Spencer, and Elizabeth A. McCarthy, Massachusetts General Hospital, prepared for the New England Hospital Assembly "Convention-by-Mail," 1945. Abstracted with the permission of Paul J. Spencer, secretary.*

METHODS FOR THE DETERMINATION OF THE NUTRITIVE VALUE OF PROTEINS[1]

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PROTOPLASM without protein does not exist, and all of the tissues of the body contain protein. Skin, hair, nails, and muscle are chiefly protein in nature. Large amounts of characteristic protein material are even found in the lipid-rich nervous tissue and in the inorganic salt-rich osseous tissue. When one considers that essential nitrogenous building materials for the proteins of the body are derived ultimately from the proteins of our food, the importance of dietary protein becomes apparent. Although sometimes overshadowed by the results of often more spectacular vitamin research, investigations on the problem of the nutritive value of protein have gradually increased our knowledge of the role of protein in the body and, especially in recent years, have led to a greater appreciation of the importance of proteins in the diet. Dietary protein influences the processes of growth, maintenance, and repair as well as those of reproduction and lactation.

It has long been recognized, however, that not all dietary proteins are of equal value to the organism. A consideration of the present concept of protein metabolism sheds some light on the problem of the differences in nutritive value exhibited by various proteins.

According to the modern theory of protein metabolism, the state of body protein is dynamic, not static (1). Tissue proteins, once laid down, do not remain essentially unchanged until eventually destroyed by the wear and tear of metabolism. Proteins are being constantly broken down and resynthesized in the animal body. There is a continuous and dynamic exchange between proteins and materials in a metabolic pool, made up of a number of substances—indistinguishable as to origin—which normally represent compounds derived from catabolic processes in the tissue as well as materials absorbed from the intestines. As Schoenheimer and his colleagues (*cf.* 1) have shown, a fraction of the dietary amino acids is rapidly incorporated in tissue protein. Amino acids derived from proteins which we ate today are already integral parts of tissue protein molecules in our bodies. It has been estimated that more than half the protein in the liver and intestinal mucosa may be broken down and resynthesized in 10 days (2). Under these conditions it is readily understandable that different proteins, chiefly because of differences in chemical makeup, may possess different nutritive values. The nutritive value of a protein is high, for instance, if on digestion the protein yields a mixture of amino acids which corresponds closely to that being used by the body for its vital functions. On the other hand, a dietary protein that is deficient in one or more essential amino acids will have a comparatively low nutritional value.

In view of the importance of dietary protein in health and disease, the evaluation of the nutritive qualities of different proteins is of utmost importance. In this connection, most estimates depend on the value of the different proteins for the processes of growth and maintenance, since these are commonly of the greatest general interest. However, comparisons can be, and have been made on the basis of other criteria including, for example, such specific ones as the regeneration of hemoglobin or of plasma protein in suitably depleted animals. It is not possible to discuss all the methods here, however, and we shall confine ourselves to a consideration of a few typical examples of methods which deal with observations on growth or maintenance.

[1] Presented before the Detroit Dietetic Association, March 8, 1944.

GROWTH AND MAINTENANCE

Study of the value of different proteins in supporting the growth of young rats has been widely employed as a method of assessment of the comparative value of different dietary proteins. Most of us are familiar with early classic charts illustrating the failure of rats to grow on diets containing a deficient protein, such as zein, as the sole source of protein. Supplementation of the zein-containing diet with appropriate amino acids (lysine and tryptophane) permitted the growth of the rats and characterized the deficiency of the protein in question.

Some of the early efforts of Osborne and Mendel, pioneers in this field, to obtain quantitative information on the relative nutritive values of different proteins for growth and maintenance in rats, are of interest. In one such study (3), different groups of rats were fed comparable diets, each containing a different protein, and the average gain or loss in weight of the animals after a given time interval (30 days) served as an index of comparison of the nutritive values of the different proteins. To cite typical data, average gains of close to 60 gm. were recorded for rats fed casein as a dietary protein constituent, while a comparable diet containing gliadin permitted only maintenance of the initial weight and diets containing phaseolin, zein, or gelatin resulted in losses in body weight ranging from about 10 to 20 gm. Interpretation of these early experiments is complicated by the fact that a large amount of "protein-free" milk was included in the basal diet to provide minerals and accessory food factors. Moreover, no attempt was made to control the food intake of the animals. These early investigations, nevertheless, served to emphasize the great qualitative differences in the nutritive value of proteins from various sources.

In a later study, Osborne and Mendel (4) adjusted the percentages of different proteins in the diets of young rats so that the animals ate about the same amount of food and grew at approximately the same rate. They found that to produce the same gain in body weight, 50 per cent more casein than lactalbumin was required, and nearly 90 per cent more of edestin. Similarly, by appropriate dietary adjustment they were also able to determine the percentages of different proteins required for maintenance of the body weight in experimental rats. These methods yield useful information of a quantitative nature but they are extremely laborious. Interpretation of the results of these early studies was likewise complicated by the inclusion of a large amount of "protein-free" milk in the diet.

The best-known method of Osborne and his associates (5) in determining the comparative nutritive value of different proteins is that in which the ratio of gain in body weight of young rats to amount of protein consumed is determined:

$$\text{Efficiency ratio} = \frac{\text{gm. gain in wt.}}{\text{gm. protein eaten}}$$

In this manner a numerical expression for the efficiency of different proteins may be determined. The value of the ratio for a given protein may increase with the percentage of protein in the ration until a maximum value is reached, and for still higher percentages of protein the value may decrease. Accordingly, Osborne and his associates ascertained the level in the diet at which this maximum value for the ratio is attained. This method has its limitations for, as they pointed out, when the dietary protein is ca-

pable of promoting growth only at a very slow rate, the amount of protein eaten per gram of gain will approach infinity as the gain approaches zero. The ratio is influenced, moreover, by the age and weight and possibly by the sex of the animals employed (6). Boas Fixsen (6) states that short experiments give higher values than long ones and that 60 days is the minimum duration required for accuracy. Despite these limitations, the method of Osborne and his associates, or closely allied methods, have proved useful and have been extensively employed.

Boas Fixsen *et al.* (7) reported that it is possible to obviate the complications caused by variations in the value of the ratio with protein intake. By ingenious plotting of their data they were able to determine what appeared to be the maintenance requirement of protein, apart from the requirement of growth for their experimental animals. This maintenance requirement amounted to about 10 gm. protein for a rat throughout a 9-week experiment. When the efficiency ratio was calculated after subtracting this amount from the protein intake, the values obtained were found to be constant, irrespective of the intake of protein, provided the level in the diet was unaltered.

McCollum and Shukers (*cf.* 8) have devised a method in which nitrogen retention of young rats fed a diet containing the protein to be studied is determined directly. Three comparable groups of young rats are employed, and the total nitrogen in the carcasses of the control group is determined. The other groups are fed a diet containing the protein to be tested for periods of 28 and 56 days, respectively, and the nitrogen in their carcasses after these periods is determined directly as with the control group. The dietary protein consumption throughout the period is carefully recorded. From the nitrogen content of the rat carcasses and from data on the consumption of dietary protein, it is possible to determine what percentage of the ingested protein was used to form tissue protein. This novel method of studying the nutritive value of dietary protein has not, however, been used extensively. Also worthy of note is the method in which the "paired feeding" technique is employed in studies bearing on the nutritive value of different proteins (9).

Studies on the efficiency of various proteins for purposes of growth or maintenance, as ascertained by observations on body weight, have been carried out chiefly with animals, and particularly with rats, although other animal species have also been employed. There are, however, a few reports in the literature of studies with human subjects. Thus, there has been occasion to study the growth-promoting properties of the protein of milk or of milk substitutes in investigations with infants. To cite a typical example, Beach *et al.* (10) made a careful study of the relationship between the food intake, the concentration of protein in human milk, and the estimated protein deposition in body tissue. It is interesting to note that during the first 5 months of life, infants retain in their bodies approximately one half the protein fed to them in the milk. Studies have also been made by a number of workers on the growth-promoting qualities of milk substitutes containing soybean protein, in one of which observations were made on over 200 infants (11). A number of similar studies are also reported in the Chinese literature.

In addition to methods involving observations on body weight, another type of method frequently employed is based on nitrogen balance data in which young rats are generally used as experimental animals (12). The biological value of a protein for growth and maintenance is determined with the help of the following relationship:

$$\text{Biological Val.} = \frac{\text{"Retained Food Nitrogen"}}{\text{Absorbed Food Nitrogen}} \times 100$$

Values for "retained food nitrogen" and absorbed food nitrogen are obtained by taking advantage of the following premises:

Absorbed Food N = Food N − Fecal Food N

Fecal Food N = Fecal N − "Metabolic N of Feces"

"Retained Food N" = Absorbed Food N − "Excreted Food N"

"Excreted Food N" = Urine N − "Endogenous N of Urine"

Mitchell (12) pointed out that the best and most practical way of estimating the "metabolic nitrogen in the feces" of rats on an experimental ration containing protein is to determine over a period of feeding a non-nitrogenous ration the excretion of fecal nitrogen per gram of food consumed, and to apply this figure to the amount of protein-containing food consumed in subsequent experimental periods.[2]

The "endogenous N of the urine" is equivalent to the urinary nitrogen excreted by the rat on a suitable protein-free diet, of which enough is consumed to provide sufficient energy for the caloric requirement of the experimental animal.

The complete formula for determination of the biological values of protein by this method then becomes

$$\text{Biol. Val.} = \frac{\left[\text{Food N} - (\text{Fecal N} - \text{"Metabolic N of Feces"})\right] - \left[\text{Urinary N} - \text{"Endogenous N of Urine"}\right]}{\text{Food N} - (\text{Fecal N} - \text{"Metabolic N of Feces"})} \times 100$$

This method of estimating the biological value of a protein is open to criticism in that it involves a determination of "excreted food nitrogen" and of "endogenous nitrogen." The distinction between "exogenous" nitrogen and "endogenous" nitrogen envisioned by Folin is no longer tenable according to the more modern concept of protein metabolism (*cf.* 1). This criticism does not, however, invalidate the estimation. Even though it may be considered empirical, the procedure is capable of yielding reasonable and reproducible results when the conditions outlined by Mitchell are observed. In this connection, Mitchell *et al.* (14) have shown that values obtained by the "balance-sheet" method agreed with those obtained by an independent type of method in which the paired feeding technique, supplemented with carcass assays, was employed.

The "metabolic nitrogen of feces" may also be estimated by determining the fecal N of experimental rats fed a diet containing a small amount of egg protein as a sole source of nitrogen. The egg protein is practically completely digested and the fecal N under these conditions is approximately equivalent to the "metabolic N of the feces." Similarly, the urinary nitrogen excretion of rats fed a similar diet containing egg protein may be employed as an index of the "endogenous nitrogen of urine," owing to the very high biological value of egg protein.

Advantage is taken of these relationships in a modification of the balance-sheet method (15) employed in studies of the nutritive value of the protein of bread in experiments with human subjects. These investigators compared the urinary and fecal N excretion of subjects fed a carefully designed diet containing the test protein food, with the N excretion of the same subjects when fed a comparable diet containing egg protein. The amount of protein in the diet is kept at 5 per cent of its total caloric value and the fat and carbohydrate in the standard egg diet adjusted

[2] Boas Fixsen *et al.* (13) prefer to employ the actual amount of nitrogen excreted in the feces of each rat during a period of nitrogen-free feeding in the calculation of the biological value of protein.

so that the ratio of fat to carbohydrate corresponds to that in the diet containing the protein food product under investigation. The urinary N excretion on the egg diet represents the "endogenous N" of the urine, while the fecal N excretion represents the "metabolic N" of the feces. The biological value of the tested food protein is then calculated as follows:

$$\text{Biol. Val.} = 100 - \frac{\text{Urinary N of Subject Fed Cereal Product Diet} - \text{Urinary N of Subject Fed Standard Egg Diet}}{\text{N Absorbed by Subject Fed Cereal Product Diet}}$$

The value for the N absorbed by a subject fed a protein-containing food is calculated by estimating what part of the fecal N was of dietary origin (Fecal Food N − Egg Fecal N) and subtracting this value from the dietary food N.

It should be pointed out that the biological value of a protein is not an absolute figure. For a given protein it is dependent, for example, to a certain extent on the level at which the protein was fed in the diet. Thus, the biological value of a protein fed at a 5 per cent level is greater than that of the same protein fed at a 10 per cent level (16). In comparing the biological value of one protein with another, attention should, therefore, be given to the level at which the respective proteins were fed. Ideally, for purposes of comparison the proteins should be fed at the same level in the diet, and to the same type of experimental subjects.[3]

It is also worthy of note that the nutritive value of a protein may be influenced by heating. Thus the biological value may be either increased or decreased, depending on the type of protein and the conditions of heating. To use specific examples, heating casein at 140°C. for 30 min. *in vacuo* lowers its biological value (18) while heating, soybeans at 15 lb. pressure in an autoclave for 45 min. increases the growth-promoting properties of the protein in the beans (19). For practical purposes it is desirable to know the nutritive value of the protein in food products when the products have been prepared for consumption.

The biological value does not provide information on the digestibility of protein. It yields information only on that portion of an ingested protein that is digested and absorbed. The nutritive value of a protein, of course, depends on the value to the body of the protein as it is ingested. It is desirable, therefore, to know the digestibility as well as the biological value of proteins. Mitchell has approached this problem by indicating the losses incurred by a dietary protein "in digestion" and "in metabolism" and arriving at the "net protein content" of a given food (*cf.* 20). For example, a loss of 9 per cent wheat protein is entailed "in digestion" and a further loss of 30 per cent "in metabolism" when the protein is fed at an 8 per cent level in the diet of rats (20). The net protein content of wheat, therefore, is 7.6 per cent, whereas the total protein of wheat, according to Mitchell, is 12.5 per cent. Under the same conditions, ham protein showed no loss "in digestion" and a loss of 26 per cent "in metabolism." Thus, the net protein content was 14.6 per cent while the total protein content of the ham was 19.8 per cent.

Another means of providing quantitative information on the nutritive value of a protein is to multiply the digestibility of the food protein by its biological value, thus arriving at what might be termed its nutritive index. A comparison of the nutritive indices of various proteins should prove useful.

Inspection of the amino acid composition of a protein is capable of providing considerable information on its nutritive value. In this way it would be very easy, for example, to predict that casein is nutritionally superior to gelatin. As a result of the work of Rose and his associates in particular, we have invaluable information on the indispensability of certain amino acids and the dispensability of others for the processes of growth and maintenance in the animal body. In the light of these data the nutritional inadequacy of gelatin is apparent. While it may be true that gelatin is practically 100 per cent protein, it is equally true that this protein is deficient in, or almost devoid of, histidine, tyrosine, tryptophane, phenylalanine, cystine, methionine, threonine, leucine, isoleucine, and valine (21).

Data on the amino acid composition of various food proteins will undoubtedly be of even greater value in the future when more is known of the requirement of the body for particular amino acids. In appreciation of the relation between biological value and amino acid composition of proteins, Block and Bolling (21) and Beach and his associates (22) in particular have carried out extensive research on the amino acid content of the total protein in food products.

Despite the usefulness of data on the amino acid composition of the protein in food products, however, this type of information does not obviate the necessity for biological determinations of the nutritive value of proteins. Data on the amino acid composition of a protein tells us nothing about the digestibility of the latter, for instance. The ultimate criterion of nutritive value is still information gained from *in vivo* studies.

[3] It is understandable that the biological value of a protein as determined in experiments with adult animals may differ from that obtained in experiments with young growing animals where the requirements of growth are superimposed on those of maintenance. While there are 10 amino acids essential for the normal growth of mammals, two of these, arginine and histidine, are not required for maintenance of nitrogen equilibrium (17).

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THE IMPORTANCE OF PROTEIN IN DIET THERAPY[1]

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THE importance of protein as an essential dietary component and as a constituent of all living tissue has long been recognized. Appreciation of its particular value as a prophylactic and therapeutic agent, however, has developed only within the last few years. The interest of the medical profession in this aspect of protein usage is increasing very rapidly and in this respect protein promises soon to rival the vitamins in popularity.

This rise of protein to a place of therapeutic importance is a result of intensive studies over the years to determine the precise relationships of protein intake, the body protein levels, and tissue function. As early as 1920 some of the work was being reported which laid the foundations for the practical applications being made today. Of particular interest were the extensive investigations of Whipple and his associates during this period, which demonstrated the importance of the liver in plasma protein production. This concept is basic to an understanding of some of the protein disorders of the body.

When one stops to consider just how extensively protein substance participates in the body processes, it is surprising that functional disorders do not occur more frequently as a result of temporary reductions in dietary supply. Our bodies are dependent upon the continuous activity of such protein compounds as hormones to regulate body processes, enzymes to digest foods, plasma albumin to maintain body water balance, globulins to resist infection, and hemoglobin to transport oxygen to the tissues, in addition to the over-all needs for growth and repair of tissue breakdown. These requirements can be met regularly in spite of fluctuations in intake because of the reserve supply of protein which the body has been shown to maintain, and which amounts to as much as one third the total quantity of circulating plasma protein. There is evidence that this reserve is not a fixed quantity contained in the tissues; instead it exists as a mobile store which moves from the fixed tissues to the circulation and back as occasion may demand.

There are no noticeable effects upon the body economy as a result of deficiencies in protein intake of brief duration. The same does not hold true for the more prolonged deprivation, however, for after a period of time certain disorders are found to occur in healthy individuals whose protein intake is deficient. The diseased person is subject to these same effects of protein lack, whether this is due to reduced protein intake, excessive loss from the body, failure of synthesis, or toxic destruction. The potential effects upon the body are the same and it would be well to discuss them at this point.

EFFECTS OF INSUFFICIENT PROTEIN INTAKE

The most generally recognized and commonest manifestation of protein depletion is hypoproteinemia, characterized by a blood protein level below the normal range of 6.5 to 7.5 gm. per 100 cc. Fall in the albumin fraction of the blood proteins is predominantly responsible for this change. As a result, the circulating blood cannot hold the amount of fluid which normally remains in colloid equilibrium with this plasma protein. Fluid passes out of the circulation into the body tissues where it exists as edema. This causes an upset in the fluid and electrolyte balance of the body and the efficiency of many body functions is impaired. In some instances there is insufficient circulating fluid to maintain proper blood pressure.

[1] Read before the Session on Diet Therapy, American Dietetic Association, Chicago, October 27, 1944.

RESISTANCE TO INFECTION

Although edema has long been recognized as the principal sign of hypoproteinemia, there are other effects which can be related to reduction of the body proteins. The recent investigations of Cannon demonstrate the inability of the protein-depleted animal to form antibodies in response to specific infections. The source of the antibodies of an acquired immunity is postulated by Cannon to be the intracellular protein reserve. This represents a breakdown in an essential body defense mechanism.

This concept of the close relationship between protein substance, antibodies, and resistance was first suggested during World War I when individuals with dietary deficiencies, among which protein predominated, were noted to show increased susceptibility to infectious disease. This suspected relationship has been confirmed by the work of Cannon and others in animals maintained upon low levels of dietary protein. It is a common observation, too, that patients showing prolonged loss of blood and body proteins in such diseases as nephrosis, nephritis, or those with malignancy or cirrhosis of the liver often succumb to terminal infection. Their capacity to form antibodies is inadequate to hold these infections in check. This, then, is a consequence of body protein depletion which may be found in either healthy or diseased individuals.

ANEMIA

At present one further effect upon the body is recognized which may result from protein deficiency, namely, the occurrence of anemia, either macrocytic, large-cell type or hypochromic, low hemoglobin variety. The development of anemia as a consequence of reduction in the body protein is readily appreciated when one considers that the blood cell framework is composed of lipids and protein while the hemoglobin within the cell is 95 per cent protein substance. Clinical observations confirm the conjectural possibility of the development of anemia. Youmans has reported finding hypochromic anemia in cases of nutritional edema wherein it was apparent that the protein supply was inadequate for plasma protein production and also for normal blood formation. Macrocytic, or primary type anemia, has also been found to occur in the presence of hypoproteinemia. Hematological study of a group of anemic patients showed that all those with serum albumin level below 4 gm. per 100 cc. had a macrocytic anemia.

A protein deficiency element has been associated with pernicious anemia. The present concept of this disease depicts a lack of either of two substances: an intrinsic factor of the gastric juice, thought to be an enzyme; or an extrinsic factor found in meat, particularly in liver. Both of these essentials appear to be protein in nature and in view of the common history of long-standing dislike or poor tolerance for meat among pernicious anemia patients, a latent protein deficiency may contribute to the development of the disease. Actually, a large percentage of these patients have been shown to have low plasma protein levels. There thus appears to be substantial evidence to indicate that anemia is one of the conditions to be anticipated when the protein supplies of the body are reduced for one reason or another.

These three conditions of hypoproteinemia, reduced antibody production, and anemia, are potential sequelae of any prolonged depletion of the body protein stores. Their development is to be expected in any individual

whose tissues have been drained appreciably of the normal protein reserves. It is significant that such effects are not necessarily associated with coexisting disease but may be due to factors outside the body, particularly an inadequate supply of protein in the diet.

In addition to the important effects of protein lack just described, which may be considered of universal application, there are numerous other special situations where an abundant supply of protein has been shown to be of specific protective value. In practically every instance a special type of diet is indicated and the protein content of the diet therefore merits special attention.

PREGNANCY AND LACTATION

Attention should be focused upon the protein intake especially during pregnancy. The old saying of "eating for two" is no longer tenable, but an increased requirement for specific fractions of the diet has been demonstrated. Protein is one of the essentials for which there is greater need, since protein is a building material and pregnancy is concerned with the building of a new body. Storage of nitrogen by the mother, as shown by a positive nitrogen balance, may begin as early as the tenth week of gestation. The amounts stored are often in excess of the requirements for growth of the fetus and the mother's metabolism. This excess may be stored for subsequent use in lactation. The growth needs of the fetus must be met and if adequate dietary protein is not supplied, the mother's protein stores will be drained. With normal dietary intake during pregnancy, the blood protein level has been found to be below normal averages during the first 6 months. If the protein supply is reduced, further reduction in these values will result. Aside from the obviously undesirable effect of having the mother's protein stores depleted, definite dangers are encountered in pregnancy which have been attributed to protein deficiency in the mother, either as the result of an acute deficiency associated with excessive vomiting or because of long-standing deficit. Such complications of pregnancy as toxemia with mild elevation of blood pressure, edema, and pre-eclampsia have been observed by some investigators to occur several times more frequently in patients having protein intakes below normal levels. The course of these complications can be favorably influenced by correction of the protein deficit.

The demands for protein during lactation are even greater. Preparation must first be made by enlargement of the breast tissue, which in itself has been estimated to require storage of as much as 17 gm. nitrogen. A continuing supply of protein is then needed for the production of milk. In animals the milk yield has been shown to vary directly with the protein intake.

One further reason for providing a liberal supply of protein during pregnancy and lactation lies in the favorable effect which protein has upon calcium absorption. A high-protein intake actually can increase the absorption of calcium severalfold; and after absorption, about half the serum calcium exists in combination with the blood proteins which, if reduced, likewise reduce the serum calcium and limit the transport of calcium to the growing fetus.

DISEASES OF THE KIDNEY

For a good many years there has been some diversity of opinion as to the desirability of high-protein diets in diseases of the kidney. Those opposing use of such diets based their views upon limited observations of apparent kidney damage resulting from administration of very high protein levels to animals. Such an effect has never been shown in man. Another basis for favoring the low-protein diet lay in the belief that excretion of nitrogen-containing waste products imposed a burden upon the injured kidney. It has now been shown that kidney function must be reduced by more than 50 per cent before an impairment in excretion of nonprotein nitrogenous products becomes apparent. Therefore it is only when kidney function is greatly reduced that lowered protein intake is necessary.

On the other hand, actual improvement in the well-being of nephritic patients may be observed following the use of high-protein diets both in adults and children. In some instances functional capacity of the kidneys has been reported to improve on such a regime, whereas there had been no improvement prior to increasing the protein intake. The amount of protein required should be determined by the circumstances. In general, where there is urinary protein loss, it should be replaced as nearly quantitatively as possible. There is also an increased catabolism or protein breakdown in the body when the nephritic condition is active, which calls for more protein. It has been suggested that 75 gm. plus the amount lost in the urine be given as the daily intake.

For the treatment of nephrosis the same dictum holds true, only to a greater extent. The urinary loss of albumin is usually considerably higher in nephrosis than in nephritis and this must be replaced in the body, else depletion of the body stores lead to the conditions commonly associated with protein deficiency. There have been many interesting features reported relating to the deranged protein metabolism of nephrosis. Sudden falls occur in the protein level with the development of a nephrotic crisis, or the plasma amino acid content may rise abruptly with marked improvement in the patient's condition. The unpredictable trends in this disease require that the body protein stores be kept at the highest possible level in order to combat any relapse or take advantage of any improvement. The present trend in therapy of kidney disease is directed more at correcting the metabolic disturbances of the body, of which hypoproteinemia is most prominent, than at the pathologic change in the kidneys.

DISEASES OF THE LIVER

The liver is the organ of the body par excellence which is concerned with protein metabolism and is itself affected by the body protein levels. It is the clearinghouse to which the digested protein, in the form of amino acids, must come for synthesis into the plasma proteins—albumin, fibrinogen, prothrombin, and globulin. Any significant amount of damage to the liver reduces its capacity to synthesize plasma protein. Conversely, an induced deficiency of body protein in animals has been found to produce fatty deterioration of the liver, which may progress to the stage of permanent damage as in liver cirrhosis.

For many years carbohydrate alone has been considered the one substance capable of providing protection for the liver cells. This is no longer true. Protein has now been shown to be considerably more effective in this respect. Experimental work indicates that the action of the protein is directed against the deposits of fat which appear in the liver as a result of damage to the liver cells. This effect can be ascribed directly to the action of the amino acids, cystine and methionine. The latter is transformed in the body to choline, which has repeatedly been shown capable of protecting and restoring the liver cells. The fat content of the liver has been shown to vary inversely with the amount of protein supplied to the body.

The cause of liver cirrhosis has remained obscure, in spite

of much work upon this problem. Recently, however, observations strongly suggest that this disease is a deficiency state. The frequency with which cirrhosis is found in individuals known to be deficient in protein and vitamins is striking. Chronic alcoholism alone has never been found responsible for cirrhosis, but now the abnormal diets which commonly accompany alcoholism have been linked with the liver damage. The observation of Patek that cirrhotic patients in the Orient, where alcoholic consumption is negligible, almost universally have protein and vitamin deficiencies, lends further support to the deficiency theory.

This relationship of diet to cirrhosis is demonstrated effectively by the beneficial results obtained through modern therapy which takes cognizance of the dietary factors by supplying high levels of protein, vitamins and calories. As compared with earlier methods of treatment by means of high-carbohydrate diets and removal of protein-containing transudates, much better results in a greater number of patients are now reported. In some cases actual improvement in liver function can be demonstrated.

The effect of protein on the liver is not only reparative, but also definitely protective against the agents known to be toxic to the liver, such as chloroform, arsphenamine, and even the sulfa drugs. This action is also related to the methionine content of the protein.

PEPTIC ULCER

A close correlation has been found between the development of peptic ulcer and the level of protein in the diet under experimental conditions. Ulcer lesions have been produced by administration of low-protein diets to rats, in which case almost one half the animals developed true ulcers after a three-month period. A high-protein diet in rats gives protection against such ulcer-provoking regimes as alternate feeding and starvation, and the administration of hydrochloric acid. A similar close relationship between the incidence of ulcer and protein intake in humans has not yet been demonstrated, but a rather high incidence of moderate hypoproteinemia in peptic ulcer cases has been reported. This may be a causal effect of inadequate dietary buffering of the strongly acid gastric secretion, or it may result from the insufficient quantities of protein supplied by the limited diets used in ulcer treatment. Large quantities of milk must be consumed in order to supply normal protein requirements which in the ulcer patient are increased above normal in the healing stage. Any ulcer, be it peptic, infectious, or the result of pressure and circulatory changes, represents a loss of tissue and requires protein for rebuilding. Its healing may actually be retarded by minimal degrees of edema. In the presence of an inadequate protein supply, all body needs must compete and all may not be satisfied.

OTHER CONDITIONS

There are other medical conditions in which too little attention is often given to maintaining proper levels of protein nutrition. In many of these, special dietary care is required and the protein quota should not be neglected. In old age, for instance, all too often the food intake deteriorates to soft foods of limited variety. Decreased amounts of hydrochloric acid in the stomach reduce the efficiency of protein digestion. Yet in such instances the same protein requirements for maintenance of the numerous body functions are still in effect.

In other situations the need for replacing the loss of abnormal quantities through one means or another should not be overlooked in planning the diet. An example of excessive alimentary loss of protein is seen in all types of chronic colitis, losses which must be replaced if the body is to be kept at high levels of efficiency. Protein may also be lost because of its excessive breakdown under the influence of fever or heightened body metabolism, and negative nitrogen balances may develop, as for instance in hyperthyroidism.

There are numerous conditions encountered in the field of surgery where the maintenance of high-protein levels has been found essential to the well-being of the patient. Any type of surgical procedure entails a certain amount of tissue destruction which may be quite extensive. The actual loss of body protein as a consequence of surgical manipulation is evident in postoperative urinary nitrogen losses which have been found to be as much as 10 to 26 gm. daily or more than 100 gm. nitrogen over a period of 10 days. Additional loss of plasma protein and hemoglobin from hemorrhage at the time of operation, too, is inevitable.

In addition to these losses, many patients may be brought to operation with their protein stores already seriously reduced as a result of the condition necessitating operation. Where a malignancy or other gastro-intestinal disturbance exists, food intake has often been reduced because of loss of appetite or vomiting. There may be faulty intestinal absorption as well. In other situations, such as chronic infection, the prolonged fever in conjunction with copious drainage from an infected wound may reduce a patient's plasma protein to surprisingly low levels if careful attention is not given to replacement by dietary or other means. The combination of these factors is responsible for the reduction in the blood protein levels found in nearly half of a series of unselected surgical patients. More than half of the fatalities which occurred were in patients showing hypoproteinemia.

The course of the patient during operation and subsequently has been shown to be intimately related to the plasma protein level and the protein reserves of the body. The development of surgical shock from acute blood loss or tissue manipulation is more prone to occur in an individual whose protein stores have been depleted prior to operation than in one with adequate reserves. Furthermore, the patient well fortified with protein supplies can withstand the lowering of blood protein levels which may occur in progressive relationship to the duration of the anesthesia. Liver damage from anesthetics, an ever-present concern of the surgeon, rarely occurs when this organ is well supplied with protein.

Recent work has extended earlier observations on the importance of an adequate protein supply as one of the factors affecting wound healing. It has now been shown that connective tissue growth proceeds more rapidly when high-protein diets are fed. As a result, the maximum strength of a wound is reached more rapidly when liberal protein intakes are supplied. Under these circumstances cellular proliferation is stimulated and accelerated. At the other extreme, when the factors disposing to hypoproteinemia have not been combated and edema is present, wound disruption is not unusual. Patients operated for cancer of the gastro-intestinal tract or other lesions of the stomach in which dietary habits are commonly upset, show a high incidence of wounds with retarded healing or deep infection. Experimentally, the condition of such wounds can be improved rapidly by administration of plasma transfusions.

In other ways the postoperative course of protein-deficient patients may be impeded. The pulmonary edema which sometimes accompanies low blood protein levels predisposes to pneumonia. Less specifically, the prolonged weakness following operation is attributed by some observers to lowered levels of body protein.

The adequate treatment of patients suffering from burns is very dependent upon maintenance of proper protein levels in the blood. During the acute stages of extensive burns, protein must be supplied primarily by the intravenous route. As soon as possible, however, this means of administration should be augmented by high levels of dietary protein. Only in this way is it possible to overcome the great losses of plasma protein from burned surfaces and tissue loss as a result of toxic destruction and probable liver damage. A continued supply of large amounts of protein is necessary to provide for repair and new growth in the burned area, as well as for maintaining the body's resistance against the ever-present danger of overwhelming infection.

The importance of maintaining surgical patients at high levels of protein nutrition is being demonstrated repeatedly. If the body protein stores are depleted prior to operation these should be restored if time permits. Careful attention to maintenance of normal or even high levels of protein during and after operation will result in a smoother and happier course for the patient and an overall reduction in mortality.

SUMMARY

Studies in the field of protein metabolism and its application to disease are progressing rapidly. The significance of protein substance to many essential body mechanisms has been pointed out. Without doubt other functions and relationships to disease states will be revealed, such as the action of the protein molecule as a whole or the effect of any of its specific components, the amino acids. There is a definite trend toward thinking of protein in terms of amino acids, since the protein molecule loses its entity when it enters the body and is split into amino acids.

There are many opportunities for practical dietary application of the advances in our understanding of protein economy. The provision of liberal protein diets in instances where the value of protein has been demonstrated offers both prophylactic and therapeutic advantages to the patient.

With the demonstration of this increased importance of protein dietetic therapy, it can only be recommended that there be an increased use of high-protein diets.

UNRRA in Action. Besides evacuating wounded during the civil war and getting food through battle lines, UNRRA's Greece mission has assisted in restoring 64 hospitals with the cooperation of the Greek Ministry of Health and has perfected plans in cooperation with government agencies for the repair of 2500 homes. An education supply service has been set up in the mission's supply and distribution bureau; the main objective is to get children back to school by October. This section is now working with the mission's industrial rehabilitation division to get schools rebuilt. The nutrition section collected data on dietaries of hospitals, sanitoria and orphanages in the Athens area and also set up an experimental diet kitchen. A report from Athens in April stated that there were then in Greece approximately 500 members of UNRRA's mission, including 231 on the regular staff and 270 from the voluntary societies.

Relief and rehabilitation operations for Yugoslavia were initiated on April 15. The report of an UNRRA Public Information officer, dispatched from an advanced area in Yugoslavia during the military period, describes the distribution of food and other supplies: "Everyone here is amazed at the fine work the Yugoslavs are doing. . . . There are certain delays, for example the anxiety of the Yugoslavs to weigh everything meticulously before accepting it. . . . To those of us used to comparative plenty (or at least to sufficiency), this may appear a trifling detail to worry over. But when you think how preciously every least item of supply is regarded, how the women sweep up the grains of wheat as they escape from the sacks, and how the driver of a truck is made personally responsible for the smallest spanner in his kit (and may be shot for undue carelessness if he loses any valuable spare parts), it is not so trifling. In one district, for example, the distribution of canned meat and vegetables allowed each person slightly more than one can. Some cans, therefore, had to be opened and their contents portioned out so that each person could have his or her exact allowance. By exact I mean just that. If the scales wavered slightly over the mark, the weighing official took a spoon and removed one bean so that the scales showed the right amount had been given."

UNRRA and Italian government officials allocated food to 338 institutions and organizations in and about Naples during the first 3 weeks of April. It was estimated that 43,745 children and nursing and expectant mothers in the Naples region were receiving these initial supplies. Distribution in this region is being made through children's institutions such as public schools and kindergartens, which can now afford their youngsters the nutritionally desirable hot meals. Distribution of food to non-Italian displaced persons in the Rome area was scheduled to begin April 25. These refugees will be able to obtain evaporated milk, canned mackerel, dried peas, beans, farina, sugar, margarine, and soap.

On April 3 Director General Lehman appointed Col. D. R. Oakley Hill, formerly of the British War Office, to serve as chief of the Albania mission. Discussions by the mission have been carried on with Albanian departmental ministers regarding the country's monthly supply requirements.

UNRRA's repatriation program in the Middle East, planned for the return to their homelands of a large majority of the 100,000 Greek, Yugoslav and Polish refugees in the Middle East, Africa, India, and Iran, is well under way. The repatriation program began in April with the departure from a Middle Eastern port of the first ship of UNRRA's initial convoy of homeward-bound refugees. Carrying 500 Greek men, women, and children, the vessel was routed to the Aegean Islands. These first war exiles will be followed by most of the 3000 Greeks at Moses' Well camp, east of Suez. The first contingent of repatriates was returned to the islands of Samos, Chios and Ikaria, most of whom had fled the islands in *caiques*, the traditional Greek fishing craft. Many arrived in the Middle East suffering from malnutrition and various diseases caused by hardship, exposure and lack of vitamins. They returned fit and healthy after treatment by UNRRA's doctors, nurses, and welfare workers. The first repatriates returned home fully equipped to begin normal life again. A repatriation team accompanied each group of 1000 refugees who were supplied with 10 days' dry rations, a month's medical supplies and a complete outfit of clothing. Each family was issued cooking utensils.

Over 600 children in the first shipload of repatriates to Yugoslavia were given special food during the trip. When the Yugoslav children first arrived in the Middle East they were desperately undernourished. Now they are returning to Yugoslavia bronzed and healthy. UNRRA flight team mingled with the refugees, helping old and young, attending to the refugee rations, medical details and personal baggage. The whole operation was smoothly and expeditiously performed.

UNRRA's Director of Health, Dr. Wilbur A. Sawyer, in surveying the problems currently faced by the United Nations, stated that "We are forced to recognize that the war years have brought to a large part of the world a marked set-back in public health performance and a considerable increase in disease prevalence. War has in many ways interrupted the steady progress toward more complete disease control. Nutrition, Dr. Sawyer said, is a special interest of the Health Division because of the effects of malnutrition on peoples who have suffered from war deprivations. —*Monthly Review, May 1945, United Nations Relief and Rehabilitation Administration, 1344 Connecticut Ave., Washington 25.*

FOOD COMPOSITION TABLE FOR SHORT METHOD OF DIETARY ANALYSIS (REVISED)[1]

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THE estimation of the nutritive value of a diet, following the usual procedure in which separate computations are made for each food item, assumes a greater degree of accuracy than is justified when the wide variation in composition of any given food is taken into consideration. In view of this, a short method of dietary analysis was developed (1) in which foods of similar composition were grouped together and mean values for each of the nutrients established.

Since the publication of the original food composition table, investigations on the nutritive value of foods have greatly increased the knowledge of food values. This suggested the advisability of revising the table in order to incorporate the newer information. A committee of the Diet Therapy Section of the American Dietetic Association, May Reynolds, chairman, cooperated by circularizing a tentative revision of the table among its members and securing suggestions for modifications which would better adapt it to their needs. The authors are particularly grateful for the practical, constructive suggestions received.

TABLE 1

Comparison of the values secured with the long and short methods for dietary analysis, based on 30 records for 3 days

	UNIT	LONG METHOD	SHORT METHOD	MEAN DIFFERENCE	STANDARD ERROR OF DIFFERENCE	MEAN OF SHORT METHOD IN PERCENTAGE OF LONG METHOD
Calories		1956	1966	10	36	100.5
Protein	gm.	67.2	67.9	.7	2.8	101.0
Fat	gm.	84.7	83.2	1.5	4.4	98.2
Carbohydrate	gm.	235.4	235.4	0	9.0	100.0
Calcium	gm.	.83	.83	0	.04	100.0
Phosphorus	gm.	1.18	1.20	.02	.05	101.7
Iron	mg.	11.55	11.52	.03	.76	99.7
Vitamin A	I.U.	5954	5829	125	460	97.9
Ascorbic Acid	mg.	61.8	60.9	.9	5.8	98.5
Thiamin	mg.	1.18	1.21	.03	.14	102.5
Riboflavin	mg.	1.70	1.70	0	.07	100.0
Niacin	mg.	11.44	11.55	.11	1.11	101.0

The values in the food composition table (Table 2, *see* opposite page) were computed chiefly from the figures compiled by the National Research Council (2), supplemented by some values from the tables of Bowes and Church (3). The means for food groups were derived from the values for commonly used foods, weighted in accordance with the findings from food consumption studies in the United States (4). In most instances the values are computed for the size of portions commonly used, as suggested by Bowes and Church. The vitamin values were reduced to allow for losses in cooking, using as a basis the tables compiled by the Committee on Food Composition, National Research Council (5). An expansion in the number of food groups was necessitated by the inclusion of three additional nutrients: carbohydrate, fat, and niacin. Certain foods deviated sufficiently in composition from the means of any group to require that they be listed as separate items.

The accuracy of the values in the food composition table was tested on a series of 30 three-day diet records. These were computed first by the usual method whereby each individual food item is calculated separately, and then using the revised table. Comparison of the results secured by the two methods showed a high degree of accuracy for the values in the food composition table. When tested statistically the observed differences were shown to be due to errors in random sampling and not to real differences between the two methods. In Table 1 is given a comparison of the mean values obtained by each of the two methods, the standard error of the difference, and the mean value of the short method in terms of the long method. It is evident that the mean values in the food composition table are highly satisfactory since in no instance was the deviation greater than 2.5 per cent.

To illustrate the use of the food composition table, a sample day's menu from a high school girl's record is given.

Breakfast:	Orange	1
	Cornflakes	1 serving
	Sugar	2 teaspoons
	Milk	1 cup
	Bread, white	2 slices
	Butter	2 teaspoons
	Jelly	4 teaspoons
Lunch:	Luncheon meat	1 slice
	Tomato	½
	Bread, white	2 slices
	Butter	2 teaspoons
	Banana	1 medium
	Cookies, chocolate	2
Midafternoon lunch:	Apple	1 small
	Candy, creams	4 pieces
Dinner:	Beef, roast	1 medium serving
	Potato, boiled	1 small
	Onions, creamed	½ cup
	Gravy	1 tablespoon
	Bread	1 slice
	Butter	1 teaspoon
	Milk	1 glass
	Celery	2 pieces
	Rhubarb sauce	½ cup

Summarizing this day's menu for calculation gives:

	Number of serving
Cereals: enriched	6
Dairy products:	
butter	5
milk, whole	1¾
Desserts: cookies	1
Fruits: banana	1
citrus	1
other, fresh and canned	2
Gravy: white sauce	1¼
Meat:	
beef	1
luncheon meat	½
Sweets	7
Vegetables:	
potato	1
tomato	½
other, cooked	½
other, commonly served raw	1

The nutritive content of the day's diet is determined by multiplying the values in the food composition table by the number of servings.

[1] Grateful acknowledgment is made of a grant from the research fund of the Graduate School, University of Minnesota, which helped to finance this study. Paper No. 2225, Scientific Journal Series, University of Minnesota Agricultural Experiment Station. Received for publication April 12, 1945.

TABLE 2

Food composition table for short method of dietary analysis

FOOD	APPROXIMATE MEASURE	WT.	CALORIES	PROT.	FAT	CARBOHYDRATE	Ca	P	Fe	VIT. A	ASCORBIC ACID	THIAMIN	RIBOFLAVIN	NIACIN
		gm.		*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*mg.*	*I.U.*	*mg.*	*mg.*	*mg.*	*mg.*
Cereal products: refined	1 sl. bread (30 gm.); ½ c. cooked cereal and cereal products (20 gm. dry); 1 c. prep. cereal (30 gm.); 3 soda crackers (20 gm.); 1½ c. popcorn (20 gm.); 1 griddle cake		80	2.5	1	15	.01	.03	.2	—	—	.02	.02	.2
whole grain and enriched	1 sl. bread (30 gm.); ½ c. cooked cereal (20 gm. dry); 1 c. prep. cereal (30 gm.); 2 graham crackers (20 gm.)		80	2.5	1	15	.01	.04	.6	—	—	.06	.04	.6
Dairy products: butter	1 tsp.	5	35	—	4	—	—	—	—	160	—	—	—	—
cheese, Cheddar type	1 cu. in.	30	120	7.0	10	1	.25	.18	.3	430	—	.01	.14	—
cheese, cottage, skim	¼ c.	100	100	19.0	1	4	.08	.26	.2	70	—	.01	.13	—
cream, light	⅛ c.	30	60	1.0	6	1	.03	.02	.1	360	—	.01	.04	—
custard	½ c.	130	150	7.0	7	15	.13	.14	.9	435	—	.08	.26	.1
eggs	1 med.	50	80	6.5	6	—	.03	.10	1.4	495	—	.07	.18	—
ice cream, commercial	⅔ c.	80	165	3.0	10	16	.06	.05	.2	265	—	.02	.21	.1
milk, buttermilk, skim	1 c.	240	90	8.5	1	12	.29	.23	.7	25	2	.11	.43	.2
milk, whole	1 c.	240	160	8.5	9	12	.28	.22	.5	410	2	.10	.43	.3
Desserts: cake, plain, chocolate	1 piece cake 2½ x 2½ x 2½ in. (75 gm.), for iced add 1 serving sweets; 1 waffle 6 in. dia. (60 gm.)		225	4.0	11	28	.03	.06	.8	175	—	.09	.11	.6
cookies, plain	2 med. 3 in. dia.; 1 brownie	40	150	2.0	7	20	.01	.03	.3	155	—	.04	.03	.2
pie crust	⅙ shell, single crust	25	105	1.5	6	11	—	.02	.4	—	—	.06	.04	.5
puddings, cream fillings	½ c.	140	210	4.5	6	35	.16	.13	.6	230	—	.06	.22	.1
Fats	2 sl. bacon (20 gm.); 1 tbsp. fat (12 gm.); 1 tbsp. mayonnaise (15 gm.); 1 cu. in. salt pork (15 gm.); 1½ tbsp. French dressing (15 gm.)		120	1.0	13	—	—	.01	.2	5	—	.01	.01	.2
Fish: cod, haddock, fresh, cooked	1 med. serving	75	50	12.5	—	—	.01	.14	1.5	—	—	.05	.06	.8
halibut, herring, tuna, whitefish, cooked	1 med. serving; tuna (60 gm.); others (75 gm.)		105	15.0	5	—	.02	.17	.8	35	—	.04	.08	2.4
salmon, canned	1 med. serving	75	125	15.5	7	—	.05	.22	.7	220	—	.02	.12	5.9
Fruits: banana	1 small	100	95	1.0	—	23	.01	.03	.6	350	10	.04	.07	.6
cantaloupe	½ melon, 4½ in. dia.	150	35	1.0	—	8	.02	.02	.6	3,600	52	.08	.08	.1
citrus	1 med. orange; ½ med. grapefruit; ½ c. juice; 1 med. large lemon	100	50	1.0	—	11	.02	.02	.4	180	42	.07	.03	.2
yellow, fresh, canned, dried	fresh (100 gm.): 1 med. peach, 2 to 3 apricots, 3 plums; dried (30 gm.), add ½ serving sweets; for sweetened canned, dried or fresh, add 1 serving sweets		55	.5	—	13	.01	.02	.4	585	4	.01	.02	.6
other, dried	3 to 4 dates; 1½ to 2 small figs; dried apple; ¼ c. raisins	30	90	.5	—	22	.02	.03	.9	30	1	.04	.03	.2
other, fresh and canned	½ c. cooked; sweetened, add 1 serving sweets	100	65	.5	—	15	.01	.01	.4	80	6	.02	.02	.1
Gravy; white sauce	¼ c.	60	70	2.5	5	4	.05	.05	.2	180	—	.04	.11	.1
Legumes: beans, peas, soybeans	½ c. cooked; dried (30 gm.)		105	6.5	—	19	.03	.12	2.4	20	—	.14	.06	.5
	½ c. cooked; dried (30 gm.)		105	10.5	5	4	.07	.18	2.5	55	—	.24	.10	.8
Meat: beef, fowl, lamb, veal, cooked	1 med. serving	75	160	18.0	10	—	.01	.18	3.1	20	—	.09	.15	3.9
liver, cooked	1 small serving	60	80	12.0	2	4	.01	.22	4.9	16,500	9	.12	1.22	6.0
luncheon meats, cooked	2 sl. sausage, minced ham, dried beef, luncheon roll (30 gm.); ½ frankfurter (30 gm.)		80	5.0	6	1	—	.06	.7	—	—	.09	.07	.8
pork; ham, cooked	1 med. serving	75	205	18.0	15	—	.01	.18	2.4	—	—	.60	.15	3.2
Nuts	1 tbsp. peanut butter; 8 to 15 halves walnuts; 16 peanuts; 12 to 15 almonds; 12 halves pecans	15	95	3.5	8	3	.01	.06	.3	—	—	.03	.02	1.4
Sweets: candy; sugar; syrup	1 tbsp. sugar, jelly, jam, syrup, honey; 1 serving plain Jello; plain candy (fondant or mints, 14 gm.); 6-oz. bottle soft drink		55	—	—	14	—	—	—	—	—	—	—	—
candy bar	1 2-oz. chocolate-coated bar		275	5.0	13	35	.05	.10	1.4	—	—	.03	.09	3.3
molasses; sorghum	1 tbsp.	20	50	—	—	12	.04	.01	1.3	—	—	.01	.04	—
Vegetables: cabbage; sauerkraut, cooked	⅔ c.	100	25	1.5	—	5	.05	.03	.5	30	28*	.05	.04	.2
cabbage, raw; cauliflower, cooked	1 c. cabbage (50 gm.); ⅔ c. cauliflower (70 gm.)		15	1.0	—	3	.02	.02	.3	20	26	.04	.03	.1
corn; parsnips, cooked	½ c. corn; 1 large parsnip	100	95	2.0	1	20	.02	.07	.4	75	6	.04	.05	.6
green and yellow; asparagus, cooked	⅔ c.	100	25	2.0	—	4	.02	.04	.9	775	38**	14**	.11	1.0
broccoli, cooked	⅔ c.	100	35	3.5	—	6	.15	.08	1.4	4,800	63	.08	.28	.6
carrots, cooked	⅔ c.	100	40	1.0	—	9	.04	.04	.8	12,000	3	.04	.06	.5
green beans, cooked	½ c.	100	40	2.5	—	8	.06	.04	1.4	480	13**	.06**	.12	.4
leafy green, cooked	⅔ c. kale, spinach, turnip, other greens	100	30	2.5	—	4	.25†	.05	2.7	6,285	46**	.08**	.27	.5
peas, fresh, cooked, canned	½ c.	100	70	4.5	—	12	.02	.09	1.4	590	11**	.15**	.09	1.1
sweet potato, cooked	½ large	100	130	2.0	1	28	.04	.05	.7	5,920	14	.08	.06	.5
potato, cooked	1 small; for fried add 1 serving fats	100	85	2.0	—	19	.01	.05	.7	35	8	.08	.03	1.0
tomato, fresh, canned, juice	½ c.; 1 small tomato (100 gm.); 2½ tbsp. catsup (50 gm.) add ½ serving sweets		20	1.0	—	4	.01	.02	.6	990	19	.05	.03	.7
other, cooked	½ c. beets, eggplant, onions, rutabagas, etc.	100	45	1.5	—	10	.04	.04	.6	—	8	.01	.02	.2
other, commonly served raw	2 pieces celery; 8 sl. cucumber; ⅛ hd. lettuce	50	10	0.5	—	2	.02	.01	.2	70	3	.03	.02	.1

The nutritive value of food mixtures such as macaroni and cheese, Spanish rice, chow mein, creamed vegetables, soups, etc. should be computed on the basis of the kind and approximate amount of the foods in the combination. * For sauerkraut, omit ascorbic acid. ** For canned, reduce ascorbic acid and thiamin by one half. † Calcium unavailable in chard, spinach, and beet greens.

The short method has been found to result in a considerable saving of time without sacrificing accuracy. It should be pointed out, however, that the method is most satisfactory when applied to a varied diet.

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Nutrition of the Severely Burned Patient

At the Massachusetts General Hospital one burned patient ate no less than 1800 calories with 100 gm. protein and as high as 5000 calories with 255 gm. protein. Despite this consistently high intake of food, which extended over several months' time, the flesh simply melted from his body.

There are several reasons for an increased demand for calories and protein. First, there is an increased metabolic rate. Second, there is a large area of burned skin and flesh that must be replaced by new skin. Third, the extensively burned patient has a vast open wound area, an area that is losing a protein-rich filtrate almost as if it were water passing through a sieve. This terrific loss of blood protein (it has been observed to be as much as 60 gm. nitrogen or 375 gm. protein in 24 hours) must be replaced in order to keep the patient's blood protein level within the normal range. Fourth, bacteria, which destroy body cells, are present in abundance, and the blood cells themselves are metabolized if other food is not available. Fifth, an extensively burned patient will suffer third degree burns covering from 15 to 30 per cent of his body surface. These areas must be treated by means of skin grafting to ensure healing, all of which adds to the open wound area with a consequent increase in loss of the protein filtrate. If the blood protein is not maintained within the normal limits, the grafts do not grow.

One factor, often overlooked, is the role that the patient's immunity plays in his ultimate recovery. Because antibodies are composed of the gamma-globulins, sufficient of the essential amino acids must be available to ensure adequate antibody production and the consequent protection against infection.

It is easy enough for the doctor to order a diet of 3500 calories with 175 gm. protein. To see that the order is carried out is another story.

A sample diet might include the following:

	protein, gm.	*calories*
1000 cc. skim milk	35	360
5 oz. beef	30	230
2 whole eggs	13	155
3 servings 20% fruit	1	245
4 slices bread	10	270
1 serving potato	2	80
2 servings vegetable	2	60
1 oz. butter		225
1 serving cereal	2	70
40 gm. sucrose		160
	95	1855

If the above amount of food can be given in 3 meals, approximately one half the requirements will be met. Additional nourishment must be given in the form of fruit juices and eggnogs as follows:

1000 cc. skim milk	35	360
800 cc. 10% fruit juice	5	350
7 whites of egg	20	100
50 gm. powdered skim milk	17	180
40 gm. chocolate flavor	3	80
170 gm. sucrose		580
	80	1650
Total for day	175	3505

It calls for all the initiative and ability the dietitian can muster to ensure that the patient consumes this diet. Each patient presents a different problem. The patient who comes into the hospital with 40 to 60 or 70 per cent of his body burned is in no condition to want to eat 3500 calories. It can be done and it has been done, but it takes the full cooperation of the patient, the nurse, and the dietitian. If the patient absolutely refuses to eat and cannot be convinced of the importance of the food to his recovery, a stomach tube must be used. This method of forced feeding is to be avoided, if possible, for it is a painful experience to the patient, and further lowers his morale.

There is every indication that a high-carbohydrate, low-fat diet is preferable, for example: 45 to 50 calories per kilogram normal body weight, with 20 per cent of the total calories in the form of protein and from 45 to 60 per cent as carbohydrate.

For the first 24 hours little other than water and saline-water can be tolerated, and the dietitian relies upon the plasma and intravenous dextrose to furnish the protein and calories. After the first day the nausea subsides and the appetite of the patient gradually returns. At this hospital the nurses have been instructed as to the importance of food. Forcing fluids by mouth is a major part in the burn therapy, and for several hours fruit juices with added carbohydrate are all that the patient can tolerate. Surprisingly soon the emphasis is placed on high-protein foods, milk and its combinations with sugar and eggs, and eventually meat, fish, and cheese in small amounts. High-caloric mixtures, with eggs, milk, sugar, and powdered milk can be used. However, it has been found that these concentrated mixtures are apt to be too sweet and too rich to be well tolerated in large quantities.

As soon as the patient can tolerate solid food, he is given small quantities of scrambled egg, milk toast, custards, and the like. It is important not to be too over-anxious to feed large amounts at any one time, for this invariably causes distress and nausea, and a definite food dislike can be formed which will take some time to overcome.

If the surgeons and dietitian can impress upon the nurses in charge of the patient the importance of food, the problem of feeding is one third accomplished. The nurse knows her patient best; she is with him at all hours. If food is available in the refrigerator so that the busy nurse can easily obtain it, it is surprising the amount of fluids and food that can literally be poured into the patient between 9 p.m. and 6 a.m., given in the form of milk, eggnog or fruit juice when the patient is awakened for medication.

At the Massachusetts General Hospital three average-sized meals are given, with emphasis placed on nourishments during the night and early morning and at mid-morning and mid-afternoon. It takes hours every day to feed a burned patient who is weak and in pain, in itself one of the more difficult problems during the present shortage of nurses. Here the nurse's aides have done a splendid job in alleviating the problem.

The patient's food likes and dislikes must be catered to. The importance of an attractive tray, of well-prepared and well-served food, cannot be over-stressed. If the dietitian explains to her patient very simply why he should eat, she can usually get him to take real pride in doing his part.—*Excerpts from an article by Mary H. Macomber, Dietitian, Burn Service, Massachusetts General Hospital, prepared for the New England Hospital Assembly "Convention-by-Mail," 1945. Abstracted with the permission of Paul J. Spencer, secretary.*

Editorial

ARMY DIETITIAN ON HOSPITAL SHIP U.S.S. *COMFORT* REPORTS JAP BOMBING

An "on the spot" story of the bombing and suicide crash of a Japanese plane into the hospital ship, U.S.S. *Comfort*, has recently been reported to Major Helen C. Burns, Director of Dietitians, by First Lt. Edna M. Raybourn, Medical Department Dietitian.

The heinous attack on the brightly lighted, clearly marked Navy hospital ship occurred on the night of April 28, 50 miles south of Okinawa. There were 63 casualties including 29 killed, 33 wounded and one missing, most of whom were Army personnel, either patients already wounded in Okinawa or members of the Army medical staff. Lieutenant Raybourn, dietitian on the U.S.S. *Comfort* at the time of the bombing, performed her duties with the same courageous spirit and initiative shown by other dietitians in the war. The following is quoted from her letter:

I understand quite a detailed description of our tragedy has reached the states, so I will relate only a few of the incidents and then tell you how I handled the food, which was quite a problem.

We were out of port about four hours when the plane circled over our ship, giving us the friendly signal. It was only a matter of a few minutes before we were aware of the fact that it was not one of our own, but a Jap suicide plane. It did damage to the upper wardroom and officers' quarters on the bridge deck, demolished the operating room, dental clinic, x-ray offices, wards, and hallway on the superstructure deck. On the main deck it completely destroyed three wards, main diet pantry, elevator shafts, passageways, and telephone exchange. On the second deck the stoves were damaged. Of course all this was not done by a falling plane alone, but by two bombs which were dropped during the action. The greatest catastrophe and that which grieves us most, was the loss of our nurses and men. The doctors, nurses, and enlisted men who were killed had been so conscientious.

The night of the bombing my thoughts were far from food. Those of us who were left, immediately turned to putting out fire and assisting with the saving of lives. At a time like that you can do things you never dreamed you were able to do—put broken arms in place, administer first aid to those with open wounds, give plasma, etc.

After things were under control and with the assistance of the Navy personnel in the kitchen, we served sandwiches and coffee on the superstructure deck. Everyone was so tired and nervous a cup of coffee was just what they needed. With the main diet pantry completely demolished and only two small pantries left to operate from, we had quite a problem to feed the many patients we had aboard ship. The sergeant who usually helps me was badly burned and unable to assist. But after the first breakfast, we were again in good working order. I turned our diet pantry into a special diet kitchen, and the other pantry into a regular toy pantry from which we served cafeteria-style. It really is surprising what one can do when the time comes.

The second day we were out we had a submarine attack which really frightened us. But in a very short time that was taken care of. I will never forget the morning I looked out of the porthole and saw land. I never thought an island in the Pacific would look so good to me.

CONFERENCE ON CONVALESCENT CARE FOR CHILDREN

"Treat the 'whole' child, not merely his illness." This was the constantly recurring theme of a most stimulating, well-balanced conference held April 19 and 20 at Hershey, Pennsylvania, sponsored by the Committee on Convalescence of the National Society for Crippled Children and Adults. Three facilities used in caring for convalescent children were considered—the child's own home, a foster home, or the institution. It was generally agreed that if convalescent treatment can be provided in his own home, this is the best background for a recovery period. However, certain conditions may make it necessary to give care in a foster home or an institution especially fitted to care for convalescent children.

Kathleen Allen, to whom as director of the study on convalescence much of the credit for an inspiring conference goes, opened discussion by pointing out the need for supplementing good medical care with auxiliary services such as medical-social, nursing, nutrition, physical and occupational therapy, and education. Two speakers then keynoted the whole program—Joseph Johnston, M.D., chief, Pediatric Service, Henry Ford Hospital, Detroit, who spoke on the physiological aspects of convalescence, and Milton J. E. Senn, M.D., psychiatrist, the New York Hospital, who interpreted the emotional aspects of convalescent care.

Coordination of professional services for children during the convalescent period was discussed from the standpoints of medicine, nursing, physical therapy, occupational therapy, medical-social work, education, nutrition, and administration. Waldo F. Nelson, M.D., professor of pediatrics, Temple University, aptly pictured these coordinated services by likening each to a musician in an orchestra conducted by a physician.

Convalescent needs of children were discussed by authorities in the fields of rheumatic fever, after-care following acute illness, orthopedic disability, and cerebral palsy. At the final session much of the preceding discussion was summed up in four papers dealing with integration of the three types of convalescent care into the health and social work effort of the community.

The role of nutrition in convalescent care was referred to repeatedly. Dr. Johnston emphasized that healing is closely associated with growth and showed by means of slides the correlation of nitrogen and calcium retentions with growth and healing. His work should give considerable impetus to efforts toward better nutrition for all crippled and convalescent children.

Robert Lyon, M.D., medical director, Cincinnati Children's Convalescent Home, discussed the needs of children who have been acutely ill. Without minimizing the value of good nutrition, he revealed that the greatest number of diagnoses in his institution have been malnutrition, but even under careful medical and nutritional care, there was far from 100 per cent improvement. This indicates the need for further study of diagnoses. Dietitians and nutritionists working with children afflicted with cerebral palsy will be especially interested in the comments of Winthrop Phelps, M.D., director, Children's Rehabilitation Institute, Baltimore, concerning the dietary requirements of the spastic, athetoid and ataxic child. The role of the dietitian and nutritionist in a convalescent care program was discussed by Eleanor Wilkinson, consultant in nutrition, Children's Bureau, U. S. Department of Labor, who also represented the American Dietetic Association.

The above papers as well as others less directly concerned with nutrition will be of special interest to members of the American Dietetic Association. All the papers are to be published in the proceedings of the conference and widely distributed.

DUTY "UNDER CONDITIONS ALMOST BEYOND HUMAN ENDURANCE"

In the words of a release received May 14 from the Technical Information Division of the Office of the Surgeon

General, "Among the unsung heroines of the war can be listed the Army dietitians whose loyal devotion to duty under the most adverse circumstances is taken for granted by troops in combat areas wherever they are serving. The last to lay claim to such distinction would be First Lt. Ruby Motley, who was imprisoned three years in the Philippines, yet her record under bombardment before capture and during internment is eloquent evidence that she qualifies for such a role."

Col. Carlton L. Vanderboget, now a patient at Walter Reed General Hospital as the result of an injury from a bomb during the Bataan fighting, and formerly Commanding Officer of General Hospital 2 at Bataan, spoke of the heroic work of Lieutenant Motley under conditions almost beyond human endurance. Even when the Japs kept the prisoners on a starvation diet, Lieutenant Motley never missed a day of work. In the midst of indescribable conditions during the siege of Bataan and Corregidor she continued to do everything possible to give the sick and the wounded the best available food. Colonel Vanderboget said that facilities at this time were "next to zero," but Lieutenant Motley would husband such items as soup, fruit juice, and milk for those who needed them most. Toward the end the American diet consisted mainly of rice, and considerable ingenuity and effort were required to provide the increasing casualties with anything approaching a nutritive diet. It often meant working around the clock and under living conditions which were difficult indeed.

As mentioned earlier in this JOURNAL, Lieutenant Motley was assigned to Sternberg General Hospital, Manila, as head dietitian in January 1940 and at the end of that year was transferred to Corregidor for three months. From the first of March until April 8 she was at Bataan. When Bataan surrendered she was transferred to Corregidor with the Fort Mills Station Hospital which was later moved into the Malinta Tunnel. Corregidor was surrendered May 6, but the Japs allowed the nurses and dietitians to continue working with the wounded there until July 2 when they were transferred to the Santo Tomas Internment Camp, comprising about 40 acres surrounded by a high stone wall. During the first half of her imprisonment Lieutenant Motley was head dietitian at the children's hospital and later dietitian at the general hospital for the 4000 internees at this camp.

For the first two years while Jap civilians were in charge of the camp the food situation was fairly satisfactory. Natives were allowed to come into the camp with fresh produce and fruits which the prisoners bought and they also managed to smuggle in goods from the outside. When the Jap military authorities took over, however, conditions became very serious.

"They started a starvation program," Lieutenant Motley said, "in which they cut down our rations to the point where we were getting only 600 to 700 calories a day. For children under ten years of age they gave only half this amount so the adults shared part of their meager rations with the children."

The diet of the prisoners during the Jap military regime was reduced to rice, corn, and soybeans with some *dilis*, a dry, salted fish that no one liked, issued about once or twice a month. They had no other meat or fish. The internees worked on gardens which helped materially, except that the Japs would frequently requisition what was grown. A green vegetable somewhat like spinach, of the species *Talinum*, the Japs constantly appropriated for their own use. The prisoners received only one Red Cross package during their entire stay, consisting of about forty pounds of toilet articles, clothing, and food for each person. In this package was some odorless cold cream which most of them used for cooking fat!

Lieutenant Motley can be proud of her family as her family is of her: she has two sisters whose husbands are in the service overseas, a brother, Capt. Hurley L. Motley, now a flight surgeon at Maxwell Field, Texas, and a sister, Lt. Dellamae Motley, an Army dietitian, now with the 224th General Hospital in France. Her mother never lost faith that her daughter would eventually return, and she encouraged her other daughter to follow her desire to become a dietitian. When the younger sister was an intern at Walter Reed Hospital she was asked about her attitude on going overseas in view of her older sister's imprisonment. "That just makes me all the more determined to do everything I can," she replied, and volunteered at the first opportunity for duty abroad.

Lt. Ruby Motley, after her 90 days' leave, was to report at a Redistribution Center whence she hoped to be reassigned for duty.

REPORT OF NOMINATING COMMITTEE, AMERICAN DIETETIC ASSOCIATION, 1944–45[1]

The Nominating Committee of the American Dietetic Association—Elizabeth Baldwin, Marie L. Casteen, Winning S. Pendergast, Elizabeth Perry, and S. Margaret Gillam, chairman—presents the following ballot for 1945–46:

President-Elect: Mable MacLachlan, B.S., Michigan State College, and M.S., Teachers College, Columbia University.

Positions held:
- Instructor, Michigan State College
- Dietitian, and, since 1934, Director of Dietetics and Housekeeping, University Hospital, University of Michigan

Professional activities:
- Treasurer, and Chairman, Finance Committee, and Member, House of Delegates, A. D. A.
- President, Michigan Dietetic Association and Ann Arbor Dietetic Association
- Member, Michigan Nutrition Committee

Vice-President: Helen A. Hunscher, A.B., Ohio State University, and Ph.D., University of Chicago.

Positions held:
- Assistant in Nutrition Research, Merrill-Palmer School
- Associate in Research, Children's Fund of Michigan
- Since 1937, Professor and Head, Home Economics Department, Western Reserve University

Professional activities:
- President, Detroit Dietetic Association
- Chairman, Professional Education Section, A. D. A.
- Member, Research Committee, and Chairman, Foods and Nutrition Division, A. H. E. A.
- Chairman, Cuyahoga County Nutrition Committee

Publications:
- Author or co-author of over 30 articles appearing in this JOURNAL and other professional and scientific journals, and of chapters in two books on nutrition

Vice-President: E. Neige Todhunter, M.S., University of New Zealand, and Ph.D., Columbia University.

Positions held:
- Associate Professor, Washington State College, and Nutrition Researcher, Washington Experiment Station
- Since 1941, Professor and Head, Department of Foods, Nutrition and Institution Management, University of Alabama

[1] Details concerning provision for making other nominations are stated in Article V, Section 6 of the By-Laws of the Association, as adopted October 26, 1944.

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Professional activities:
Member, Journal Board, Investigation Board, Membership Committee, Scholarship Committee, Nominating Committee, A. D. A.
Chairman, Research Committee of Food and Nutrition Division, A. A. A. S.
Member, American Institute of Nutrition, American Chemical Society, and Omicron Nu
Publications:
Booklets, *Every-Day Nutrition for School Children* and *Your Weight—Signpost to Health and Longer Life*
Author of research papers and articles in this JOURNAL and numerous other scientific and professional journals

Treasurer: Beulah Hunzicker, M.S., University of Wisconsin.

Positions held:
Dietitian, Presbyterian Hospital, Chicago, and University Hospital, University of Michigan
Since 1936, Director of Dietetics, Presbyterian Hospital, Chicago
Professional activities:
President, Illinois Dietetic Association
Member, House of Delegates and Finance Committee, and Convention Chairman, A. D. A.

Treasurer: Bertha E. Nettleton, M.S., Teachers College, Columbia University.

Positions held:
Food Production Supervisor in Laboratory Kitchens, Boston
Manager, Horace Mann Cafeteria, and Assistant Instructor, Institution Management, Teachers College, Columbia University
Director of Research and Supervisor of Food Preparation, Childs Restaurants
Since 1928, Institution Product Representative, General Foods Corporation
Professional activities:
Treasurer, New York Home Economics Women in Business
Nominating Committee, Greater New York Dietetic Association
Nominating Committee, Southeast Home Economics Women in Business
Publications:
Articles in professional and trade journals

NOMINATING COMMITTEE

The following candidates (five of whom are to be elected) for the Nominating Committee for 1945–46 have been selected as representatives of special fields of interest in the profession:

Captain Mildred Allbritton, M.D.D., A.U.S., B.S., Alabama College, Walter Reed Hospital Training Course. Present position: Chief Dietitian, Army Service Forces, Seventh Service Command, Fitzsimons General Hospital, Denver.

Helen Baughman, B.S., Margaret Morrison Carnegie College, Johns Hopkins Hospital Training Course. Present position: Ward Dietitian, Johns Hopkins Hospital, Baltimore.

Marion D. Floyd, B.S., Simmons College, Peter Bent Brigham Hospital Training Course. Present position: Chief Dietitian, Massachusetts General Hospital, Boston.

Helen C. Hamilton, B.S., Teachers College, Columbia University. Present position: Nutritionist and Product Representative, Consumer Service Department, General Foods Corporation, New York.

Maniza Moore, A.B., Mississippi State College for Women, Peter Bent Brigham Hospital Training Course. Present position: Director of Dietetics, Vanderbilt University Hospital, Nashville, Tennessee.

H. Lavern Owens, A.B., Chico State College, Woodland Clinic, and University of California Hospital Training Course. Present position: Food Administrator, California Department of Institutions, Sacramento.

Rosa Spearman, B.S., M.A., Texas State College for Women. Present position: Director of School Cafeterias, Dallas, Texas.

E. Evelyn Smith, B.S., M.A., Teachers College, Columbia University. Present position: Assistant Professor of Institution Management, Department of Home Economics, University of Illinois.

Maxine Turner, B.S., University of Oklahoma, Michigan University Hospital Training Course. Present position: Nutritionist, Oklahoma State Department of Health, Oklahoma City.

DELEGATES-AT-LARGE

Two of the following candidates are to be elected to represent membership in Maine, Mississippi, New Mexico, Nevada, North Dakota, South Dakota, and Wyoming where there are no affiliated associations:

Margaret C. Moore, B.S., North Dakota State College, Seattle Course for Student Dietitians. Present position: Dietitian, Veterans Administration Facility, Albuquerque, New Mexico.

Mary E. Morse, B.S., Drexel Institute of Technology, Eastern Maine General Hospital Training Course, Bangor. Present position: Chief Dietitian, Eastern Maine General Hospital.

Elvira T. Smith, B.A., B.S., Ohio State University, M.A., Teachers College, Columbia University. Present position: Head, Food and Nutrition Department, School of Home Economics, North Dakota Agricultural College.

Mary Stansel, B.S., Mississippi State College for Women, M.S., Western Reserve University, Johns Hopkins Hospital Training Course. Present position: Nutritionist, Mississippi State Board of Health, Jackson.

Current Comment

QUALITY FOOD PRODUCTION IN COLLEGE RESIDENCE HALLS

MARGARET E. TERRELL

Director, Residence and Dining Halls, University of Washington, Seattle

Dietitians have done much to educate the public in the selection of food that will give adequate nourishment. Never have the results of their teaching seemed more apparent than in the feeding of men in service. In fact, "Food for Health" has become a national phrase full of meaning to the public. People want to be healthy, and try to eat the things that are good for them.

Nutrition, however, in terms of food, should be presented appropriately and with imagination. The majority of college residence halls have trained dietitians to manage the food service. Quality food production is the goal, no doubt, of both the college administration and the dietitian, and college administrators feel that they are ensuring satisfactory results by employing specialists. They expect the managers to have good food standards and the knowledge and ability to put these into practice.

There are four wheels that support food production: money, materials, manpower, and methods. Food may be considered the chassis, but the vehicle will not function satisfactorily without its wheels. The driving force is in the back wheels—money and manpower; the front wheels, to which the steering mechanism is attached, are material and methods.

How many dietitians do you know who claim that they like to drive but are not mechanically inclined? Have you ever heard them say that they would be completely bogged down if called upon to take responsibility for money management? Money is important to the forward movement of food production. A budget must be met. If the

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are widely used in these diets:

Convalescent ulcer	Cardiac
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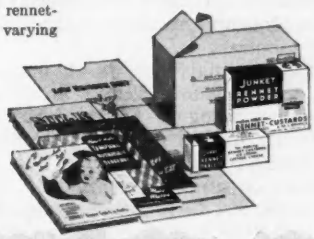

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rates are not properly set, or if expenses are not adequately controlled, food quality is likely to suffer. Some colleges in their desire to encourage enrolment set rates too low to afford good quality. The dietitian is usually in a position to prevent this in her department. If she is alert to the success of the food unit, she will suggest a reasonable rate and present a workable budget for its maintenance. It is well for her to support her statements by submitting comparative figures obtained from similar colleges and local competitive units.

It is impossible to set one rate that will be equally desirable for all sections of the country, due to the great variation in labor and food costs. In 1942, prior to the Army and Navy programs, a survey was made of charges in 25 state colleges. Food service rates were found to vary from $35 per month in a midwestern university to $16 and $18 per month in certain southern colleges. At the time schools were being commissioned by the Army and Navy, two in the West presented comparatively high figures. Budget items were challenged but found reasonable, based on local situations. Living costs in those areas had been among the highest in the country, according to a national survey. Officials were ready to accept the dietitian's word for estimated cost and the necessary rates. These food managers had the opportunity to set the rates appropriately, instead of hampering their units with low rates which would prevent hiring sufficient help and would also confine food choices to the lowest cost items. There is a limit to what can be done to glorify spaghetti or beans for those who crave steak and pie!

Dietitians know that they must have good materials for quality dishes. If asked for a description of a high quality sauce how many would say "a sauce of properly blended materials?" This might mean that you could use drippings, flour, hot water, a minimum of milk and seasonings. The result might be smooth, of fairly good color, and not unpleasant flavor, but it would be very different if blended with fine butter and whole milk, and the goodness measurably increased by adding cream, eggs or cheese. Of course such materials cost more money. Can the budget stand it? What is to be your pattern for costs—gravy from drippings or a hollandaise? It is not sufficient to say, "simple, wholesome food that will provide adequate nourishment." An appropriate level for the particular group must be determined. When rates have been set and are functioning, it is up to the manager to know costs and manipulate them wisely to get the most for the money.

Manpower, that rear wheel, has seen many flat tires during the past few years. Some institutions, in fact, seem to be running on the rim. Managers have been kept busy trying to find help or have been forced to do the work themselves. They have had little time to train employees or supervise methods. Naturally, something must be sacrificed when there is insufficient help, and it is likely to be the housekeeping or the preparation of food. Poor housekeeping, as a matter of fact, usually affects food quality.

Recently, a survey was made of units in the western area serving Army and Navy personnel. When schools were asked to state the factors acting as the greatest handicaps to efficient operation, three were named as having topmost and equal effect, all concerned with labor—labor turnover, inexperienced personnel, and insufficient help. To solve these problems changes were required. Two things were obvious: it was essential to have help and the inexperienced had to be trained. It was necessary, too, to exploit every means of bringing in workers, and more trainers or supervisors had to be added to the staff.

Many years had passed at the University of Washington without a bill ever appearing on our books for help wanted advertising. But in 1943 it cost us over $1,000 in advertising to keep our jobs filled. The U. S. Employment Service did not send us enough manpower, our workers did not have enough unemployed friends, and not enough transients wandered in seeking work. A thousand dollars may seem a big sum for a school to pay to attract help, but to us five dollars per job per year seemed a small price for keeping the kitchens functioning properly.

Successful business has a way of riding with the tide. If new expenses are forced upon it, adjustments are made accordingly. This quick adjustment is not always true of schools, partly because the pattern of costs does not change so frequently as in competitive business. Often it is due more to the fact that the person responsible does not interpret the operation sufficiently to the administration. Dietitians too often expect their administrators to be mind readers who know as much about the details of food service as they do, or else they feel they are not interested.

The president and comptroller need to be informed about everything that might cause an increase in expenses or arouse unfavorable criticism of the college departments. Their sympathetic understanding places the dietitian in a stronger position and is essential if irregular expenses are to be approved, and may also serve as a protection if some point concerning the organization of the food service department is challenged. An example of this occurred when a military accountant claimed that costs were too high. "Help was standing around all over the place," he said. The dietitian, however, was able to present figures showing how her employment situation compared with that in similar institutions: her units were serving more meals per employee than the average in other places and the wages paid were less, rather than more, than those paid for similar jobs in the area. These data served as a convincing argument to both the administration and the accountant.

Adequate wages are not the only means of attracting and holding desirable employees. Pleasant working conditions, well-adjusted schedules, and good training programs are equally effective. An individual sensitive enough to turn out consistently good products wants to work where personal relationships are harmonious. The employee needs a supervisor whose leadership he can respect, one who appreciates the importance of the job. Every worker, if he is to have a workmanlike pride in his achievements, must feel that he is doing something important, that he is needed by the institution. Such a person is worth training, and when he is well-trained and imbued with the standards of the establishment, he is very likely to stay. The woman employee, for instance, will not feel so great an urge to sort bolts if she has experienced an artist's thrill in making perfect pies.

The steering gear on materials has been fouled up by scarcity, priorities, and points. Because we could not steer with ease, we have been forced out of old ruts. We have found it necessary to utilize foods in new ways and use those at hand which previously had not been generally accepted. We have been asked not to refer to such foods as substitutes, but as equivalents. Equivalents they may be nutritionally, but in most cases not in popularity. Since the burden of satisfying our clientele rests upon us, we have endeavored to prepare these less popular foods so that they would be enjoyed. Devising interesting new recipes has been a wonderful stimulus and doubtless has served to make us more sensitive to patron response.

Food must be appealing in appearance or the resident will reject it. It must be delectable in flavor and tex-

Just looking won't take it off!

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Ry-Krisp is a "natural" in diets for the normal overweight man or woman because each whole grain double wafer furnishes only about 23 calories yet is an important source of thiamin, phosphorus and iron.

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ture for them to enjoy it and want it again. Creamy parsnips nicely cut and browned to a rich golden color, liver fricasseed with a well-seasoned sauce and served with a crisp rasher of bacon, and sweet young rutabagas evenly diced and cooked in ham broth, carry their own invitation to be tried again.

It is poor strategy to repeat less popular foods too frequently. Liver is not generally liked by college youths. One day as the men were filing in to lunch, a young sailor was overheard to remark, "Ugh, liver. Well it's not so bad. Anyway, we can't complain when we only have it about once a month." Normally there is a wonderful roster of foods from which to make menu selections. It is well for the menu-maker to compile a reference list of foods. Selections are facilitated if popular choices and available foods are starred, and disliked items check-marked.

While "you can't make a silk purse out of a sow's ear," on the other hand the untutored can ruin good materials by poor methods. With the rapid labor turnover, the need for training is acute. The dietitian with her usual duties of buying, menu-making, hiring, scheduling, accounting, policy setting, supervision, and contacts has tried to do this also. Too often the novice is shown to his job and a paring knife or a pot brush thrust into his hand with the barest explanation of the work, wages, schedule, etc. Either a trained dietitian or an experienced employee, who can devote time to training new help, should be on the staff where there are many labor changes. Or a head worker in each unit could be made responsible for the training, one who would work with and continually supervise the newcomers in the department. The success of this plan would depend on how many satisfactorily-trained and tried employees remain long enough to ensure continuity of training. Often, too, it is the fallacious ideas of the head of a unit which must be changed—those of the head cook, for instance, resistant to up-to-date methods of preparing vegetables, and firm in his insistence on cooking meat at too high a temperature.

Methods are so important in steering the food unit toward quality production that we should ask ourselves, "Shall we let untrained cooks set the standard of our units for us because we know only how to talk about methods—not how to demonstrate them, or because we haven't time?" Good recipes are essential but not alone sufficient for high production standards. It is enlightening to make analyses regularly, not only of methods but of schedules, equipment, and morale. A good training plan demands a trainer able not only to tell the employee how to organize her work and use the proper techniques, but to take over the job herself and skilfully execute it when necessary.

I repeat, quality food production requires the support of four strong wheels: an adequate budget, enough manpower, good materials, and carefully controlled methods.

QUALITY FOOD SERVICE IN A GENERAL HOSPITAL

MARTHA NELSON LEWIS

Ohio State University Hospital, Columbus

At our hospital we are trying not only to serve a good diet from a dietitian's point of view, but also to have the patient enjoy it. We now have a new group of students, all of whom came to us with a few weeks' to ten months' hospital experience. They believe that the dietitian's job is to plan what she considers good menus, buy good food, and send it to the patient. What they must learn is that she can do all this and still not have the patients talk about the excellent meals they had when they were in the hospital, any more than a fine commercial dining room can afford to plan a perfectly balanced dinner and serve it to all patrons with the attitude, "Here it is, it's good for you, take it or leave it." It may be that we dietitians have been so busy with what we consider to be good for our patients that we have not paid enough attention to their reactions.

I believe the service of better food in our hospital began with menu planning. One could, of course, write a book on menu planning; I shall mention merely a few of the methods we have adopted which we believe have helped to please our patients.

We try to plan menus that resemble home cooking rather than institution meals. We have made a study of the foods generally popular and those less generally acceptable and have been guided accordingly. The dishes popular in our community may not, of course, be so in yours. For instance, we have learned that if we want to start the day wrong all we need do is to serve canned plums for breakfast. We find it pays to serve fresh fruit for breakfast at least three fourths of the time. I recall working in a hospital where the rule was, "No fresh fruit for ward patients," and I have seen dried apricots served to those patients when half an orange actually cost less. Even when they cost a little more, we have found that it does not pay to spend $8 for canned plums which the patients will not eat when $10 will buy oranges and result in satisfaction as well as better nutrition.

Another of our breakfast discoveries is that patients like poached or scrambled eggs better than soft boiled eggs. "Soft boiled eggs" read well on the menu but, due to difficulties in cooking and service, when they reach the patient they may be in any state from nearly raw to hard. A patient who looks forward to eating a soft egg and finds it hard isn't going to say that he likes his food.

I keep taking creamed dishes off the menu. One of the things that marks food as institutional, as I heard a patient remark, is that "everything is creamed." Good white sauce is not easy to make and keep in appetizing condition over a serving period—hence we avoid its use as much as possible.

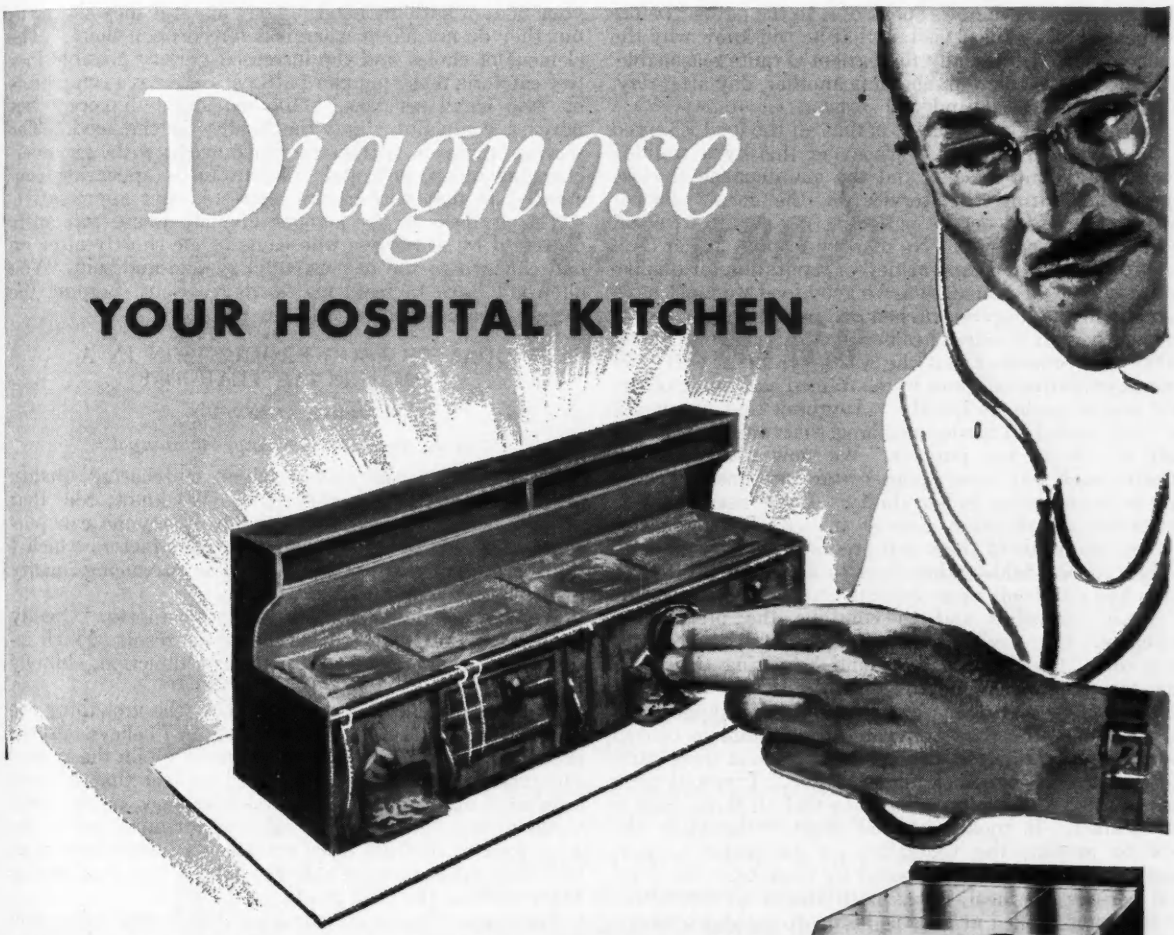
When I asked a former member of our staff, who is now patronizing both hospital and college lunchrooms, just what she believed helped most to make our food standards better, her emphatic response was, "Your antipathy for white sauce and pasty dishes."

We also find that fluffs and whips and similar soft fancy desserts are unpopular. We therefore use many fresh fruit desserts, deep dish pies, cobblers, homemade cakes and cookies, and ice creams and sherbets.

We write our menus for one week in advance and try to keep them in tune with seasonal changes and to avoid repetition of combinations of foods at too close intervals. We serve very few "mixture dishes" so frequently included in institutional suppers. As an alternative, we offer vegetable plate suppers and fruit salad plates, both of which have proved very popular, and soup and sandwich suppers.

Another factor which we believe pleases the patient is our use of selective menus. We do not send these menus into the rooms to be checked by the patient, but every private patient on general diet is visited each day. We stress the proper approach by the dietitian. She is not expected to dash in, ask the patient if he wants peaches or pears, and then dash out. Her visit is intended to be a good will visit to help the patient choose his food, so she listens to his suggestions or complaints and lets him know that we are trying to please. I insist, too, upon accuracy in the filling of this menu as selected by the patient. This is not always easy to do today. I believe that too much emphasis cannot be placed on the importance of sending the patient the foods he has selected. When we are forced

Diagnose YOUR HOSPITAL KITCHEN



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to make a substitution, we speak of it to the patient before the meal or on the next visit so that he will know why the change occurred. Usually the patient is quite reasonable, but if he checks one item and gets another, day after day, he will be displeased, and with reason.

Another common complaint is that all the food is served at the same temperature. We avoid this by a training program for pantry maids and the maintenance of close supervision during the service of the meal. Proper service of the food on the patient's tray requires tireless and endless supervision. No dietitian can sit at her desk close to the telephone and achieve a reputation for quality food service. Of course, to serve good food we must have someone in the hospital kitchen competent to prepare it. We once had an excellent head cook as far as her technical ability was concerned, but she was a tyrant as well. As a result employee relations were strained and much of the food was of mediocre quality. Anything that was good, the head cook had made, anything that wasn't, was the fault of one of her puppets. We now make a work schedule each day, and assign certain responsibilities to each cook according to her ability. If she needs help or instruction the dietitian gives it to her. Thus the employees take pride in their own products, and try to excel in their special fields rather than to defeat each other.

We had a difficult time teaching cooks to prepare foods in small quantities and to continue the preparation throughout the serving hour. They would have everything done, the stove cleared, and be eating their own meal ten minutes after the carts had left and the dining room doors opened. One day, in order to impress upon the vegetable cook that we wanted the vegetables cooked a few at a time, I helped arrange the spinach in three pans, and instructed her to cook one at a time. I walked away and returned a few minutes later to find all three pans in the steamer. It took time and effort to persuade the cook to prepare the vegetables as we wished. Now, since our personnel has increased by more than one hundred persons per meal, it has been almost as difficult to get two pans cooked at once as it was to get down to one in the beginning. It is not so much the quantity prepared at one time that is important, as the proper seasoning and the length of time the product will stand before being served.

When our mixer began to wear out and the salesman came to take the order for replacement he said, "Of course you want a larger mixer." He did not understand how we had managed with such a small one when other hospitals the same size had bought larger mixers. He was surprised when I said I didn't want a larger one, I simply wanted to avoid having all the potatoes mashed at once. It was a new idea to the salesman, and he had been selling mixers a long time!

We have found that good personnel relationships are very important in quality food production. Our women employees are really interested in producing a good product and each tries to outdo the other. Recently the salad counter woman began to come earlier of her own accord so that she could get everything carefully set up on time. It is important to have a ready ear for your employees, to make an effort to understand their needs and share in their problems; they, in turn, will then help you solve yours.

We have a pay cafeteria for the working and professional personnel, a group which all dietitians have had difficulty in pleasing. Under the old system there was considerable waste of food, since all were served alike and all did not have the same preferences. When you serve hash to your personnel, with no substitutes offered, they complain. But when you offer it along with other items as a choice, your sales of hash are good. They like it if they choose it, but they do not like it when it is forced upon them. The element of choice and the increased variety possible in a pay cafeteria make happier patrons. We have complaints of "too small servings," "too expensive dinners," but never a complaint about the quality of the food. The serving table is attractively arranged, with an ever-changing menu, new and different foods appearing constantly, so that patrons are interested and appreciative.

The decrease in the amount of plate waste was aptly expressed by a waitress who came to me shortly after we had changed to the pay cafeteria system and said, "You all won't have to scold me no more about scraping the garbage, because there ain't no garbage!"

QUALITY FOOD PRODUCTION IN A COMMERCIAL TEAROOM

VERONICA MORRISSEY

L. S. Ayres & Company, Indianapolis

We all know well enough about purchasing quality products to produce quality food. We know, too, that water is the most expensive ingredient anyone can purchase in a No. 10 can. There are other factors which I think are of the utmost importance in producing quality food.

We have adopted the following as our motto: "Quality is never attained by accident but is the result of high intention, sincere effort, and intelligent direction, skilfully executed."

In order to adhere to any such code, the first thing one needs to do is to review the personnel, for I believe that the production of quality food hinges first of all on the type of supervisor in the kitchen. I used to feel that a home economics major was all that was necessary, but we need to go a step further. Our supervisors must really like good food or at least have enough curiosity about it so that they will not accept a dish as satisfactory just because Mary or John the cook produced it.

This same "bump of curiosity" has forced other producers in retailing to go out and search for good leather, fine silk, or fast dyes, and to employ the services of specialists in order to determine suitable standards for their products. In the food business, the second largest field of merchandising in the world, we can readily find out what constitutes a good custard or creole sauce by observing results in our own kitchens and in those of our fellow craftsmen. It is amazing to see the varying results attained in a given dish, designated by a familiar name.

We have had to reduce the scope of our menus. Before the war we had nine entrées, today we have four. Naturally, less waste, fewer leftovers, and less labor are involved as a result. But even with a limited menu it takes three or four people to do the work formerly done by two.

Since the type of personnel is so very important in producing quality food, we must be sure that the supervisors really know how to supervise. The longer I am in the food business, the more I believe that "Science With Practice," the maxim of Iowa State College, would be a suitable guiding principle for all restaurants. A supervisor will find it easier to succeed if she cultivates a sense of humor and exercises courtesy in directing her staff. The latter pays high dividends and, in turn, encourages courtesy on the part of employees toward customers.

Recipes, of course, must be technically correct with regard to procedure and quantities of ingredients. Too often the inexperienced supervisor gives the cook a recipe for 125 portions and instructs her to make 200 portions, or a recipe for 25 portions and asks the cook to prepare 75. This same supervisor may also provide only enough

JUST ABOUT ONE THIRD

Will civilians be able to get more Dole Pineapple this year?

You may be asked this question . . . we certainly have . . . and here is the answer.

Abundant as the 1945 crop of Dole Pineapple is, just about one third of all the Dole Pineapple and all the Dole Pineapple Juice will be available to civilians. The rest, or two thirds of the pack, will go to the Armed Forces.

Meanwhile, should you have the good fortune to get a precious can of Dole, consider its flavorful goodness as our promise that when peace returns there will be plenty of Dole Sliced, Crushed, and Juice for everybody.

stew meat to make 60 portions and expect the cook to do the impossible by requesting sufficient to serve 75. For our permanent standardized recipe file, we use the Remington-Rand Kardex file holding 6x4-in. cards. Recipes are for 25, and for 50 or more portions. The directions are simply worded, and typed double-space for easier reading.

A supervisor who is adept at menu making in a restaurant serving quality food must have imagination as well as color sense. When she is away scouting for food ideas, like a dress designer she must learn to carry color in her mind, and in addition must learn to remember distinctive flavors. Henry Ford, I believe, has said, "The world is not overcrowded with specialists." Certainly there will always be room for real specialists in food departments. Our customers have become very well informed on adequate diets and properly cooked food. When the war ends, you may be sure their interest will continue and they will be even more discriminating.

While wartime difficulties do restrict us, we should not eliminate all "fancy" foods, otherwise our menus will be too uninteresting. Unusual dishes, even one a day, keep up the spirit in the kitchen, and it is much easier to produce quality food in a kitchen where there is high morale than in one where the morale is low. It is not enough merely to provide an adequate diet for customers. The food must not only be acceptable, but presented in such a way that the customers will be enthusiastic about it.

When asked to summarize in 100 words what she considered the essentials of producing quality food, one of our supervisors, a 1944 graduate of the University of Illinois, wrote:

> Use standardized recipes. Be sure that the employees follow the recipes exactly and do not incorporate their own ideas too freely, thereby changing the desired standard of the recipe.
>
> Use good foods—choice meats, good fruits and vegetables.
>
> Never accept a recipe that has not been tested. Never serve products that do not come up to the standards you have set.
>
> Do not sacrifice quality because of cost or lack of help.
>
> Use the latest, scientifically tested methods for cooking meats and vegetables.
>
> Check temperatures in ovens when making baked products. Be sure temperatures are even at all points in the oven.
>
> Have a clean kitchen, satisfactory equipment, standard recipes, and the result will be quality food.

APPOINTMENTS AND PROMOTIONS, ARMY MEDICAL DEPARTMENT DIETITIANS

The following Medical Department Dietitians were appointed in the Army of the United States during May 1945:

Axtell, Eunice Mae: Montana State Col.; Presbyterian Hosp., New York.
Barnes, Maude Minerva: Univ. of Kansas; St. Mary's Hosp., Rochester, Minn.
Bruenig, Doris J.: Mansfield State Teachers Col.; Oliver G. H., Augusta, Ga.
Burton, Carolyn Gertrude: Ohio Univ.; Miami Valley Hosp., Dayton, Ohio.
Carter, Evelyn Josephine: Univ. of Missouri; Jewish Hosp., Philadelphia.
De Martini, Helen Marie: Pennsylvania State Col.; Shadyside Hosp., Pittsburgh.
Fisher, Viola: Univ. of Idaho; Jewish Hosp., Brooklyn.
Graves, Barbara: Framingham State Teachers Col.; University of Michigan Hosp.
Jarvis, Margaret Ellen: San Jose State Col.; Borden G. H., Chickasha, Okla.
Jones, Carol Anne: Indiana Univ.; Cincinnati G. H.
Lagerstrom, Alice Elizabeth: Bethany Col.; R. H., Fort Bragg.
Learned, Norma Gertrude: Colorado State Col.
Levy, Lucile Waite: Univ. of California; Alameda County Hosp., Oakland, Calif.
Middleton, Maude: Woman's Col., Univ. of North Carolina; Medical Col. of Virginia.
Nissen, Clara Louise: Madison Col.; North Carolina Baptist Hosp.
Reed, Jessie Alberta: Maryville Col.; Albany Hosp., New York.
Reed, Willa Alfreda: Maryville Col.; Albany Hosp., New York.
Reese, Ruth Hopkins: Pennsylvania State Col.
Schiebel, Mary Jean: Univ. of Texas; Borden G. H.
Schill, Eileen Dorothy: Seton Hill Col.; Allegheny G. H.
Sheridan, Marjorie Elizabeth: Colorado Univ.; Univ. of Texas.
Smith, Margaret: Florida State Col. for Women; Cook County Hosp., Chicago.
Warren, June Rosemary: Univ. of California; Univ. of California Hosp., Los Angeles.

The following Medical Department Dietitians were promoted during the month of May 1945. They are on duty in Army hospitals in this country and overseas.

Second Lieutenants to First Lieutenants

Atkinson, Dorothy, R-480
Broach, Mary Arnold, R-1017
De Wees, Sarah Frances, R-911
McConville, Virginia Helen, R-824
Thomas, Betty Korb, R-994
Altermatt, Lucille Bernice, R-735
Bailey, Lucille Zilmer, R-369
Bang, Jennie Marie, R-1098
Bemmels, Murlies Arlene, R-913
Beyer, Audrey Adeline, R-1189
Boehm, Betty, R-508
Champlin, Maurine Grace, R-100
Duff, Mildred Lillian, R-1106
Kavanagh, Margaret Mary, R-211
Kratoska, Katherine M., R-608
McClelland, Ruth Winifred, R-619
McPheters, Ella Holmes, R-834
Morrissey, Martha Jane, R-1071
Moss, Frances Emma, R-1008
Rowe, Phyllis Ruth, R-1041
Erickson, Carrie Beatrice, R-565
Stevens, Mildred Elizabeth, R-860
Hessburg, Helen Mary, R-872
McGinley, Ada Elizabeth, R-973
Thompson, Mary Phyllis, R-497
Wilcox, Orilda Louise, R-528
Sadewitz, Jeanne, R-240
McMurray, Ellen Marcella, R-1026
Collins, Anne Catherine, R-67
Castle, Winifred Porinda, R-1287
Davis, Mary Evelyn, R-1171
La Velle, Marie Veronica, R-1232
Burbank, Barbara, R-876
Mattison, Doris Feldman, R-205
Geders, Margaret Elizabeth, R-561
Gertson, Alice Marie, R-4
Holt, Gertrude Anna, R-817
Klainer, Cecilia Theodora, R-17
Minor, Marjorie Eudora, R-165
Faist, Betty Elaine, R-382
Green, Sara Jane, R-495
Tyson, Genevieve Letitia, R-544
Temple, Winnie Lavenia, R-176
Buchanan, Jean Louise, R-1029
Jacobson, Dorothy, R-76
Elson, Ann Louise, R-974
Clark, Grace Lillian, R-568
Schaufelberger, Emilie Bee, R-527
Doak, Almeda Emma, R-814
Tapke, Dorothy Louise, R-700
Allbee, Elizabeth Ennis, R-82
Moles, Marie Lolita, R-771
Quinn, Helena Dolores, R-593
Stephany, Edna Amelia, R-45
Thor, Norma Oresta, R-1066
Bilson, Barbara Jeanne, R-1048
Billyeald, Jane Elizabeth, R-92
Cox, Donette, R-967
Doubt, Mary Olive, R-331
David, Ruby Darleen, R-950
Greene, Shirley Grace, R-888
Weller, Betty Anne, R-291
Zeitel, Phoebe Helen, R-745
Frankel, Jeanette, R-127
Berger, Florence Margaret, R-441
Walder, Marcella Lois, R-944
Benton, Bertha Johanna, R-1206
Dubar, Isabelle Gillum, R-400

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Tolman, Marion Esther, R-1345
Church, Margery Lois, R-1070
Douglas, Roberta, R-1126
Lundin, Helen Frances, R-571
Malery, Marjorie Virginia, R-871
Schutt, Harriet Lucile, R-736
Klauman, Doris C., R-789
Lamb, Roberta, R-1194
Mack, Roberta, R-1324
MacRae, Dorothy M., R-919
Parr, Vivian R., R-733
Reddick, Maedelle M., R-512
Riley, Winifred C., R-1212
Scholnick, Elizabeth, R-1117
Siler, Margaret V., R-1113
Wallace, Jessie L., R-1097
Taylor, Betty, R-827
Beatty, Vivian Louise, R-775
Ferguson, Irene, R-746
Henry, Joanna A., R-617
Fowler, Delta Neal, R-1178
Keefe, Doris Grace, R-1101
Little, Anne Ellen, R-333
Lewis, Pauline Elizabeth, R-1044
McClelland, Esther Louise, R-887
Moore, Aimee N., R-7
Strickland, Ida Rankin, R-408
Levine, Alizah, R-633
Parker, Sara Anne, R-1038
Raff, Eleanor Alice, R-964
Oram, Phyllis, R-725
Bradford, Maxine Mary, R-1111
Merrick, Leila Hooper, R-1135
Negro, Frances Jean, R-1056
Tipton, Helen Barr, R-535
Snyder, Dorothy Isabel, R-80
Anderson, Margaret Louise, R-207
Abrams, Selma, R-738
Bave, Grace Marie, R-363
Barnes, Ethel Lisenby, R-999
Comstock, Dorothy Ann, R-863
Cubillas, Carlotta Margarita, R-1011
Clark, Ann Amelia, R-1104
Englund, Ruth Emmelene, R-1191
Elliot, Etta May, R-853
Frolich, Louise Augusta Keyser, R-593
Hundley, Ruth, R-155
Johnson, Fuchia Lucille, R-1002
Jaynes, Winifred, R-525
Tidmarsh, Marguerite H. Doyne, R-487

First Lieutenants to Captains

Bass, Mildred Marie, R-1119
Eyle, Ann Beatrice, R-318
Richardson, Margaret Virginia, R-109
Stroup, Loreine Verna, R-273

More Dietitians for the Army

The need for Medical Department Dietitians continues, according to a statement received from the Office of the Surgeon General, dated June 5. With the cessation of hostilities in the European Theater of Operations, our efforts must be concentrated on the unfinished war with Japan.

At this time several hundred dietitians must be assigned in Station, Regional and General Hospitals in the United States. The dietitian, through her technical training, can do much to help the sick and wounded soldiers who have given so much for their country. Dietitians who are interested should apply at once to the nearest district office of the Officer Procurement Service. A list of these offices appeared on page 104 of this JOURNAL for February 1945.

Medical Department Personnel

Substantial releases of Army Medical Department personnel will not take place before the latter part of this year, Surg. Gen. Norman T. Kirk said in announcing a policy on discharges in conformity with War Department procedures. All Medical Department Dietitians whose husbands have been released from active duty will be discharged on request when release of husband is proved. Military necessity will govern all others. Since there is a shortage of these officers, it is not contemplated that others will be released from the service except the just-mentioned married dietitians.

Veterans Administration Dietitians Given Higher Professional Classification

Previous to his retirement as Veterans Administrator, Brig. Gen. Frank T. Hines raised the classification salaries for nurses, dietitians, social workers and a few other types of key employees. According to Charles Hurd, writing in the New York *Times*, June 17, the salary for dietitians has been raised from a minimum of $1,800–$2,000 to $2,000–$3,800.

The Dietitian on Duty in the Philippines

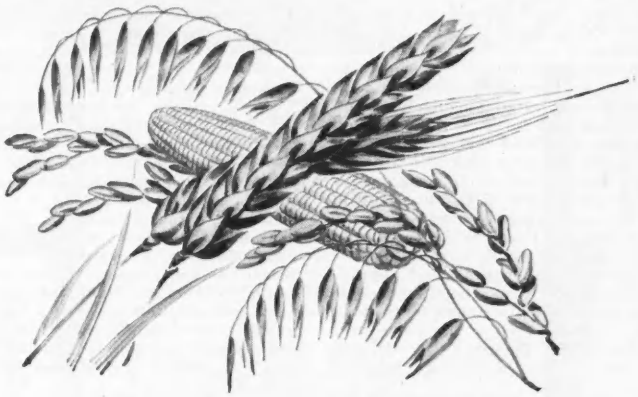
Since I last wrote I've been on the move. From Biak I went to the Philippines and disembarked at Lingayen Gulf. Stayed there a few days and then flew to Clark Field where I immediately went to work at the 24th Field Hospital, close to the front lines. This hospital had never had female personnel before and dietitians especially were something quite strange. Both Lieutenant Williams and I were there and felt we accomplished a great deal. We had splendid cooperation and the C.O. was especially appreciative of our work. By scouting about we got some much needed small equipment and although we had no diet kitchen we were able to serve the most needed of special diets. The hospital was operating at four times its normal capacity as a field hospital. Col. J. Priestly of the Mayo Clinic was one of the members of a surgical team there and it was indeed a privilege to work so closely with a man of his outstanding ability.

The 80th Hospital is now operating at full capacity at Quizon Institute here in Manila. We are operating as an evacuation hospital, therefore our turnover is terrific. It is very fascinating but hard work because we can't seem to settle down. Our main kitchen staff has been busy since we opened, cleaning up debris from the bombing but each day I can see advances made. We are attempting to do all our cooking in a very small space on a porch. We have 1200 eating on the wards and special diets average 30 per cent (away out of line but our hepatic and gastro-intestinal cases warrant special diets). Nourishments are also running tremendously high.

At this base all hospital patients are on the X scale with additional rations available upon requisition once weekly. The tremendous influx of troops here has drained the QM so we've had some hectic days. Fresh meat and butter have been issued quite frequently and ice cream once a week from an ice cream plant taken over by the Army—no fresh fruits or vegetables as yet. There are beautiful fruits available but not in quantities sufficient to supply our needs. Two more dietitians have been permanently assigned here, so now we are four. I have my hands full with just administration, but as you know, I like that. I also have my own stenographer, quite a capable Filipino girl.

Compared to Milne Bay, living conditions here are wonderful. At present we are living in one wing of the hospital, six to a room with bath attached. At first we had no water but now that the U. S. Army has taken over the main reservoir from the Japs, the situation is improved. Water nearly every hour of the day for the past three days, Filipino girls to do our laundry and clean the rooms. All this service is so luxurious after what we've had for the past year. We still wear slacks on duty but dress uniform is permitted for dress. This is a non-malarious area.

This is going to be the largest hospital center in the Philippines —right now there are several operating here. All buildings fit to use (of which there are few) are being used for hospitals. The grandstand of the racetrack has been made into wards. The beautiful city of Manila is certainly in ruins—one had to see to believe a sight like this. We are very happy about the wonderful news of Germany's surrender. However, no hilarity here because our battle casualties are too many and war is too close to us. No doubt by now you have another class of dietitians graduating. It was interesting to hear that Major Burns visited the European Theater. I do hope she comes over here.—*From a letter written by Lt. Olive Smith Granieri, R-290, 80th General Hospital #1010, % P.M. San Francisco, to Millie Kalsem, Cook County Hospital, Chicago.*



The Morning Meal and Reducing Diets

In the dietary regimens recommended by nutritional and medical authorities for the purpose of weight reduction the importance of the morning meal is given full recognition. In virtually all such diets—most of them founded on a daily intake of 1000 calories—recommendations for breakfast call for one-third of the day's total, approximately 330 calories, in the form of 25 Gm. of protein, 35 Gm. of carbohydrate, and 10 Gm. of fat.

Cereals, whole-grain, enriched, or restored to whole-grain values of thiamine, niacin, and iron, whether ready-to-eat or to-be-cooked, have a well merited place in such reducing diets. When 1 oz. of cereal is eaten with 4 oz. of skim milk and a scant teaspoonful of sugar, this attractive dish provides 159 calories, in the form of approximately 7 Gm. of protein, 31 Gm. of carbohydrate, and 0.6 Gm. of fat. In addition it contributes noteworthy amounts of important B-vitamins and minerals.

Hence this dish may well become the keystone around which the reducing-diet breakfast is organized. Cereals are available in almost endless variety of taste and form, hence rarely tire the appetite. The breakfast is easily brought to the desired amounts of calories and essential nutrients by the addition of eggs, lean breakfast meats, etc.

The appended table of composite averages shows the contribution made by the cereal dish described.

Calories	159
Protein	7 Gm.
Carbohydrate	31 Gm.
Fat	0.6 Gm.
Thiamine	0.19 mg.
Riboflavin	0.30 mg.
Niacin	1.81 mg.
Calcium	160 mg.
Iron	1.88 mg.

The presence of this seal indicates that all nutritional statements in this advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

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Book Reviews

Food for the World. Edited by Theodore W. Schultz, Professor of Agricultural Economics, University of Chicago. Chicago: University of Chicago Press, 1945. Cloth. Pp. 353. Price $3.75.

"As the war recedes, plans for the peace unfold. It is already apparent from the relief efforts of the United Nations that food will play a decisive part. The proposed United Nations Food and Agriculture Constitution is a strong bid for new international machinery to promote orderly progress in food and agriculture on a world scale. It was against this background that the essays of this book and the Norman Wait Harris Foundation program for 1944 took shape." The Twentieth Institute of the Foundation was held at the University of Chicago, September 4–8, 1944, the general theme of the program being "Food in International Relations." Four groups of professional workers were invited to participate—students of population, nutrition, food supply, and international relations. The main focus throughout was upon food policy—the fundamental elements appropriate to a food policy in a world setting. After each essay had been presented, a mixed panel of participants discussed the subject covered. These observations along with the essays comprise the book under review.

The first group of essays provides essential background by reviewing the international food movement and by drawing lessons from the prewar and the war period; the second entails a consideration of both the quantitative and qualitative features of a population, as these are related to food; the third, on nutrition, relates to the progress made in research and its application to consumption, health, and welfare; the fourth treats the problem of food supplies after the war; and the final group focuses attention upon international relations with the main emphasis on the respective merits and limitations of alternative international arrangements. A glance at the table of contents reveals such well-known names in the nutrition field as: Frank G. Boudreau, C. A. Elvehjem, L. A. Maynard, Paul R. Cannon, Ancel Keys, Margaret G. Reid, and Lydia J. Roberts; and in other fields, John D. Black, Frank W. Notestin, Karl Brandt, Howard R. Tolley, P. Lamartine Yates, Paul H. Appleby. There are 23 essays in all.

This is indeed a timely and stimulating compilation. We find the "observations of participants" at the end of each section particularly interesting and valuable as an aid in understanding the foregoing material as well as in maintaining a well-balanced attitude toward the various proposals, each forcefully presented. The use of yeast as a means of improving the dietary, the significance of the high sugar content of American diets, the importance of the problem of overeating and obesity, meat as the most palatable source of protein versus vegetable protein foods, the confusion now prevalent in the minds of doctors and laymen regarding the vitamins, and the need for and means of revising the N. R. C. recommended allowances, are among the subjects which come in for pertinent, and sometimes peppery comment in the discussion following the section on nutrition. Divergencies of opinion on the work of the Hot Springs conference, government efforts to control food policy, postwar trade policies, food subsidies, etc. come to light in the other sections and the whole is highly informative.

Most of the participants seem to agree with Karl Brandt, Stanford University, that the Food and Industrial Organization can be one of the important basic elements of an international food policy; the difficulty is in deciding how it can be made to serve the purpose for which it was set up. Dr. Brandt also expresses the hope that each nation will dispatch "the best brains, the most competent scholars and administrators to the F. A. O., and that this clearing house of knowledge, experience, and ideas about food and agriculture will inspire and guide the nations in their efforts to conquer hunger and deficiency diseases and to co-ordinate better the resources of the world's agriculture to the service of better nutrition."

All About Feeding Children. By Milton J. E. Senn, M.D., and Phylis Krafft Newill. New York: Doubleday, Doran and Company, Inc., 1945. Cloth. Pp. 269. Price $2.50.

Written by a pediatrician attached to the New York Hospital, and his co-author, for mothers of healthy children, *All About Feeding Children* is intended as an authoritative manual giving complete and definite instructions on how to cook for children, from infancy through their grade school years. It also tells how and when to offer each new food, and how to avoid or overcome the eating problems of infancy and childhood. The fundamental aspects of nutrition are included, with the principles of meal planning limited to selection of foods from the various food groups. Meal patterns for various ages are included instead of menus. The information given should be adequate for the intelligent housewife, especially since each food (*not* class of foods)—its contribution to the diet, its probable acceptance, proper preparation, etc.—is presented as a separate item in subdivisions of chapters covering the food groups. Several recipes are included, with notations as to appropriateness for children of a given age. The chapter on salads and salad dressings, for example, includes lists of vegetables which may be given chopped or shredded to children over 18 months and under 10 years of age, and those suitable only for children 10 to 12 years old. This is followed by recipes for salad dressings.

Among the special subjects treated separately are: dysfunctions associated with eating, eating with the family (including "discipline for grownups"), the school lunch-box, traveling with young children, and food and the war. Infant feeding is treated in considerable detail. All of this, and other material not mentioned in this review, make the book a valuable reference-type food manual, suitable for recommendation to mothers to supplement the general advice of an attending physician or as a useful guide in itself.

Your Digestive System. By Louis Winfield Kohn, M.D. Philadelphia: The Blakiston Company, 1944. Cloth. Pp. 274. Price 69 cents.

It may be that books such as this serve a real need on the part of the layman for a better understanding of the body structure, functions, diseases and disorders. It may be, too, that limiting the discussion of the treatment of the various diseases "to basic principles without going into detail" will prevent the reader from attempting to treat himself or his neighbor. But we are inclined to feel that such books appeal mostly to the actual or potential hypochondriac who, after reading the chapters on the significance of the medical history, that on information furnished by the physical examination, and especially that on analyses of the various digestive secretions and excreta, can be expected to "discover" at least one or more disturbances to match his self-diagnosed symptoms. If, of course, all this frightens him into the waiting-room of the nearest competent physician, the book may be useful, provided the reader actually is in need of medical aid.

Certainly the book contains much information that any intelligent layman should possess, such as: that on the organs of the digestive system and their activities, the parasites which produce digestive disturbances, and the diet in digestive diseases.

The New York Hospital, A History of the Psychiatric Service 1771–1936. By William Logie Russell, Professor of Psychiatry, Emeritus, Cornell University Medical School. New York: Columbia University Press, 1945. Cloth. Pp. 556. Price $7.50.

Those interested in the development of the hospital treatment of the mentally ill, including the changes in the diet and dietary department management in hospitals for such care in this country since 1771, will wish to read this book. It describes the care of the mentally ill at the New York Hospital, which was the first and for years the only hospital in New York and the second in this country to assume this responsibility. When it was established, chains, flogging, and other severe measures were considered necessary in the treatment of the mentally ill, and Dr. Russell records the development of the humane and scientific methods of custody and treatment that have taken place in the past century and a half—methods which to a great extent have been initiated by this liberally supported hospital system.

Under clinical and laboratory services at Bloomingdale Hospital (now New York Hospital, Westchester Division) we read that in 1913 and thereafter the position of dietitian was listed in the annual report but was not filled until 1917 when improvements followed in the dietary and instruction in dietetics to nurses began. Doubtless with tongue in cheek the author comments: "Some difficulty was experienced in reorganizing the kitchen and it was not until the firmly established cook had resigned in 1919 that a new dietitian was placed in complete charge and progress in advancing the dietary service was greatly facilitated. Even then, however, it was a long time before scientific and therapeutic considerations entirely superseded catering as the controlling principle and practice."

In 1919 "courses for student dietitians from domestic science schools were introduced, and by the end of 1926 thirty-one such students had received instruction. The interest and intelligence in dietetic treatment produced by the educational work of the department were of great advantage to the dietary service of the

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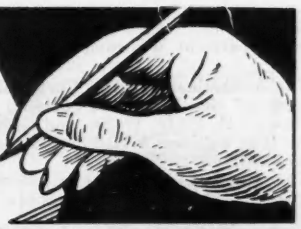

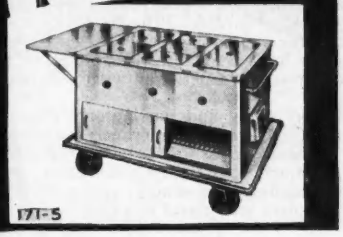

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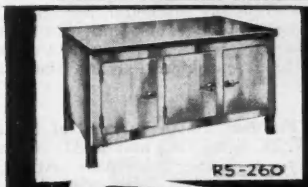

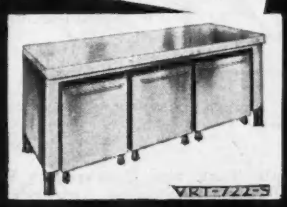

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hospital, which, especially for patients who required special dietary treatment, was completely transformed."

The Avitaminoses. The Chemical, Clinical and Pathological Aspects of the Vitamin Deficiency Diseases. Third edition. By Walter H. Eddy, Ph.D., and Gilbert Dalldorf, M.D. Baltimore: The Williams & Wilkins Company, 1944. Cloth. Pp. 438. Price $4.50.

The success of this book is probably due to the fact that it competently correlates three points of view: that of the clinician, the pathologist, and the biochemist. The current edition, which has been completely reset and, according to the publishers, contains 50 per cent more material, will continue to hold a unique position as a reference on the subject of the avitaminoses, useful alike to the research worker and the practicing physician and dietitian.

Some Fundamental Principles of Metabolism. L. H. Newburgh, M. W. Johnston, and J. D. Newburgh, Medical School, University of Michigan. Ann Arbor, Michigan: Edwards Brothers, Inc., 1945. Lithoprinted. Cloth. Pp. 62. Price $1.75.

According to the Preface: "The application of the techniques and principles of physics and chemistry is constantly enlarging our understanding of many biological phenomena that were not unraveled by the older morphological methods. It is hoped that the following discussions will illustrate the use of this new approach. No attempt has been made to give an exhaustive treatment of any of the clinical entities mentioned."

As the title indicates, the subsequent sections cover the subjects of energy, water, and extracellular fluid, as these are concerned with metabolism.

The compilation should serve as a valuable teaching medium for the medical student and the student dietitian.

The Chemical Formulary. Volume VII. H. Bennett, Editor-in-Chief. New York: Chemical Publishing Co., Inc., 1945. Cloth. Pp. 474. Price $6.

This is "a collection of valuable, timely, practical, commercial formulae and recipes for making thousands of products in many fields of industry." Of special interest to the dietitian in charge of large group food services are the sections on: flavors and beverages including such compounds as pure fruit concentrates, nectars, and imitation spices; food products, including directions for preventing discoloration of cut fruits, preparing glazes and washes for various breads and pastries, and biscuit coatings, meat loaves, etc., etc.; and soaps and cleaners. A helpful feature is the listing of chemicals and supplies and "where to buy them."

While the book is probably intended more specifically for the use of the manufacturer, it would appear that the section on food products might be well worth the price of the book to the dietitian.

Cooked To Your Taste. A Vegetable Cook Book. By Ann Willams-Heller, Food and Nutrition Consultant. New York: Essential Books, 1945. Cloth. Pp. 234. Price $2.

The author's "deep love for vegetables," in the words of the publisher's blurb, appears to have been the springboard for this new collection of vegetable recipes, sanctioned with a Foreword by Walter H. Eddy.

It is a useful book at any time, and particularly now that man's digestive tract must adjust to a preponderantly herbivorous intake. There are many usual recipes as well as new combinations for salads, fresh, dried, canned, and frozen vegetables, soups essentially vegetable, and dressings and sauces, also a seasoning guide for a wide variety of spices and useful culinary herbs.

Graduate Study and Research in Foods and Nutrition. The School of Home Economics, University of Alabama, offers graduate work for teachers, dietitians, community nutritionists with federal, state, and private agencies, specialists, and research workers in foods and nutrition. The master's degree is offered in (a) foods with emphasis on experimental foods, food preservation and production; (b) nutrition with emphasis on any of the following phases: nutrition research, community nutrition, nutrition of the child through the school program or the lunchroom. Graduate students interested in refresher and short courses in special phases of foods and nutrition may elect courses for one or more quarters for credit but not necessarily toward a degree. Graduate fellowships are also available. For further information write to Dr. E. Neige Todhunter, Department of Foods and Nutrition, University of Alabama, University, Ala.

Seattle Children's Orthopedic Hospital Mentioned in Broadcast. Jane Cowl, on her Mutual Network woman's program for May 13, described this institution as "a monument to the power of a community of democratic people working together for the common welfare." Most of the work at this hospital, which has served more than 40,000 children of the Pacific Northwest and Alaska, is done by volunteers, and a request last summer for a quart or more of preserved fruit from each farm in Yakima Valley resulted in the donation of 8292 quarts of fruit. An insurance project initiated 20 years ago, whereby various endowment policies named the hospital as beneficiary, culminated this year in gifts to the hospital amounting to $156,000. Alice Becker is dietitian at the institution.

United Women's Conference. Women delegates attending the sessions of the United Nations Conference in San Fransisco met on May 19 to discuss Women's Share in Implementing the Peace. Participating organizations included the California Dietetic Association whose five delegates were: H. Lavern Owens, Shirley Dietz, Eleanor Cressell, Evelyn Langenwalter, and Edith Marie Ferguson.

Food Handling and Public Health. This is a booklet covering a course of training for food handlers, prepared by the Indiana State Board of Health. Copies have been distributed by Lute Troutt, chairman of a subcommittee, Food Administration Section, A.D.A., to members of the Association to be tested in their own food service departments.

Wartime Honors for Dietitians. Frances E. Saville, 16 Prospect Ave., Port Henry, N. Y., after reading the editorial comment on the award to Captain VerMurlen in the March JOURNAL, writes that the entire Pennsylvania Hospital Unit attached to the B.E.F. in France, 1918–19, was awarded a citation by King George V. Florence Bettman was dietitian with this unit and the second dietitian to go overseas in World War I, according to Miss Saville.

Bibliography on Vitamin P. A complete bibliography on vitamin P, including papers concerned with the clinical, biological, and chemical aspects of the subject, is being assembled by the California Fruit Growers Exchange under the supervision of the Director of Nutrition Research, A. J. Lorenz, and will appear in *Nutrition Research*, published by this organization.

Canning Manual. A step-by-step canning guide prepared by Julia Lee Wright of Safeway Homemakers' Bureau, Box 660, Oakland 4, Calif., which sells for 5 cents, contains all basic canning information for fruits, vegetables, and protein foods. Designed as a "pin-up" chart for kitchen wall or cupboard door, complete canning procedures are detailed for boiling water bath and pressure canner. Tomatoes, fruits, jellies and jams, vegetables, meats and fish are listed.

Perishables by Air. The crops most likely to go to market by air in the future are the highly perishable fruits and vegetables, according to Charles Bowling and Harold Johnson, transportation specialists of WFA. At present tomatoes are picked when mature green, wrapped separately in paper, packed in heavy lug boxes, and shipped under ventilation, heat or ice, as needed. On arrival at their destination, each tomato must be unwrapped, the riper pinks separated from the greens, the greens then stored for further ripening. The unwrapping, sorting and storing may have to be done several times before a carload of tomatoes finally is distributed. If shipped by air, tomatoes could be picked when uniformly ripe and pink, packed in retail-size containers, and distributed direct to grocery stores.

Cauliflower goes to market in heavy wooden crates with much of the outside leaf material on each head to cushion the white center against bruising. If shipped by air, heads could be trimmed more closely and packed in lightweight crates—a saving of much wasteful weight. Lettuce, now packed between layers of snow ice in crates, is shipped in refrigerator cars, each carload sprayed with 15,000 lb. of snow ice to keep it crisp and fresh. By fast air transport, this expensive icing would be unnecessary because lettuce would not wilt much during the short trip.

Plums, one of the most perishable fruits, are so likely to suffer by rail shipping that packers now cull out a large quantity of perfect, ripe fruit of finest eating quality because it is too mellow to arrive in good condition after 7 to 10 days of travel. By air, riper, more flavorful plums could be shipped safely.

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Current Literature

Contributed by Quindara Oliver Dodge, School of Home Economics, Simmons College, and Women's Educational and Industrial Union, Boston; Margaret Shatswell Price; and the Journal Staff.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES

Vol. 209, April 1945

*Vitamin content of liver extracts for parenteral use. A comparison of crude and concentrated preparations. G. W. Clark.—p. 520.

Vitamin Content of Liver Extracts. After standardizing a sample of extract, 21 various kinds of liver extract were measured. Results indicate that crude liver extract contains less riboflavin, niacin, pantothenic acid, and L. Casei factor than concentrated extract; in addition the concentrate contains the antianemic material. Advocates of crude liver extract have less to say since this work has been done; there can be no indication to give crude liver extract in Addisonian pernicious anemia or as a source of the several B factors.

BULLETIN OF THE JOHNS HOPKINS HOSPITAL

Vol. 76, February 1945

*The methylation of nicotinamide. A simple and practical test for liver function. V. A. Najjar, R. S. Hall and C. C. Deal.—p. 83.

Liver Function Test. A nicotinic acid derivative known as F_2 is the methylated form of nicotinamide. When the latter was introduced in the portal system of a dog, the methylation took place almost at once. Normal humans on large doses of nicotinamide excreted a high level at first but within a few days the level declined. This typical pattern would seem to indicate that the liver was unable to cope with a persistent demand for methylation. It was reasonable to assume that a diseased liver could not methylate the vitamin as much as a normal organ. A number of patients were given both oral and i.v. doses of nicotinamide; those having liver involvement (especially glycogen disease) methylated less than cardiac or pneumonia patients.

FOOD RESEARCH

Vol. 10, March-April 1945

*Reaction rates for decomposition of thiamin in pork at various cooking temperatures. E. E. Rice and J. F. Beuk.—p. 99.

*Growth of staphylococcus aureus, Salmonella enteritidis, and alpha-type streptococcus experimentally inoculated into canned meat products. M. Surgalla and G. M. Dack.—p. 108.

*Composition of northern California tomatoes. G. Lo Coco.—p. 114.

*Behavior of pathogenic bacteria in fermented milks. F. L. Wilson and F. W. Tanner.—p. 122.

Freezing of apple juice. J. Forgacs, W. A. Ruth and F. W. Tanner.—p. 148.

A comparison of measurement of juiciness in roast pork loin by press-fluid and jury-rating methods. F. Hardy and I. Noble.—p. 160.

*Effect of storage temperature and time upon quality of pork preserved by freezing. I. Noble and F. Hardy.—p. 165.

Thiamin in Pork. At temperatures above 77° C., the rate of loss of thiamin in pork is constant at any given temperature and is proportional to the temperature. Below 77° C., the rate of loss decreases during the first 16 to 24 hours, and then apparently remains constant thereafter. In this lower temperature range, the rates of loss are proportional to the temperature.

Growth of Staphylococcus Aureus, Salmonella Enteritidis, and Alpha-Type Streptococcus in Canned Meat Products. Staph. aureus, Salmonella enteritidis, and alpha-type streptococci experimentally inoculated into test-tube preparations of canned roast beef, corned beef, and potted meat grew luxuriantly and survived for at least 60 days at 22 and 37° C. when loss of moisture was prevented. Staph. aureus inoculated into cans of specially ground and untreated roast beef and corned beef at a definite point, either on the top surface or in the center of the can, spread rapidly throughout the contents of the can.

Composition of Tomatoes. Generally it was found that the higher the total solids of tomatoes the higher were also the reducing sugars, the ascorbic acid content, and the *pH*, and the lower the acidity. The highest total solids was found about the middle of the season or during the period of September 20 to October 10; while the lowest was found at the beginning and end of the season and definitely started to decrease after October 22. The highest ascorbic acid content was found to be near and before the ripening state and lowest in green or overripe tomatoes. The composition of tomatoes varies from season to season and from one locality to another in the same season owing to climatic conditions. Localities with a hot, dry climate have a lower average of total solids than those with a milder one. The variation from one grower to another in the same locality may be due to soil conditions and to different methods of cultivation and irrigation used by different growers.

Bacteria in Fermented Milks. Fermented milks should be made only from high grade milk pasteurized by approved methods. They should be handled as carefully as are all perishable dairy products. This is necessitated by the fact that there is wide variation in acidity and amount of contamination which might be acquired.

Pork Preserved by Freezing. So far as could be determined from the triweekly scores of 4 to 5 experienced judges on 288 pork loin roasts, frozen at −18° C. and stored 0 to 18 and 18 to 33 weeks at −18, −12, and −9° C., no one of the temperatures preserved palatability better than another. The flavor of the fat and aroma decreased in desirability more rapidly with storage than did any of the other palatability factors. The flavor of the lean deteriorated at a moderately slow rate, while the intensity factors, the tenderness, and the juiciness did not change significantly. According to the standards of the judging panel, frozen pork loin roasts, even though obtained from high grade animals and carefully handled, cannot be stored at −18 to −9° C. for longer than 16 to 22 weeks without danger of having the flavor of the fat and the aroma decrease in desirability beyond the point commonly described as "slightly desirable" and recorded as 4.0 on the score card used.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 128, May 5, 1945

*Annual meeting of the Council on Pharmacy and Chemistry. Council Reports.—p. 29.

Vol. 128, May 12, 1945

*The overweight obstetric patient. L. D. Odell and W. F. Mengert.—p. 87.

*Protein in surgery. C. C. Lund and S. M. Levenson.—p. 95.

*Poliomyelitis in thiamine deficient monkeys. Editorial.—p. 131.

*Oleomargarine and the Council on Foods and Nutrition. Current Comment.—p. 132.

Vol. 128, May 19, 1945

*Pregnancy complicating diabetes. P. White.—p. 181.

*Council on Foods and Nutrition.—p. 204.

*Nutritional edema. Editorial.—p. 207.

Vol. 128, May 26, 1945

*Protein nutrition in pediatrics. S. Z. Levine.—p. 283.

Vitamins and Coenzymes and Sulfonamide Therapy. "The relation of vitamins and coenzymes to sulfonamide therapy was discussed; the Council will be especially alert to any developments in this field."

Overweight Obstetric Patient. The incidence of obesity among obstetric patients (weighing 200 lb. or more) at the University of Iowa was 1:26, the average age at time of labor, 29.1 yr., the incidence of hypertensive disease, 27.4% and of all the toxemias of pregnancy 31.4%. The incidence of breech presentation was slightly increased (5.5%), but otherwise there was no increased rate of abnormal presentation among the obese. Ninety-nine women were observed in successive pregnancies. The incidence of hypertensive disease, fetal death and breech and occipuposterior presentations tended to increase with repeated pregnancies. The 641 women produced an average of 4½ babies each by the conclusion of the period of observation. "Considering the obesity, the fertility of this group was astonishing." There seems to be little doubt that obesity increases the hazards of childbearing. Of these, hypertensive disease is outstanding since nearly one third of the patients suffered from it. Intervention at labor was more frequently necessary and the children were larger than average. The maternal death rate was twice normal expectancy, but the fetal death rate was not greatly elevated.

Protein in Surgery. The correction of protein deficiencies is of importance in shock, in local or general hypoproteinemic edema, in wound healing, in immunity to infection, and in detoxication of poisonous substances. The methods of treatment include the use of whole blood, plasma and albumin for acute deficiencies such as hemorrhagic shock; protein hydrolysates, concentrates and diets for less acute and for chronic deficiencies. Important losses of nitrogen from the skin are commonly seen only in deep burns of large area, but in these the losses may be extreme and may con-

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Right at a time when many foods are scarce, Mother Nature has given us a bumper crop of summer oranges. There are plenty for all civilian needs although the fruit is small. It is expected that the average size this summer will be a "288" (288 oranges to a box) as compared with the average of "220" last year. Nearly all of the limited supply of large oranges will go to the military, in most cases for shipment to our armed forces overseas.

Consumers will find these small oranges are the equal of larger fruit in flavor and vitamin content. They are thin-skinned, sweet and bursting with juice. For this reason small oranges are ideal for breakfast juice or for summer punches, ades and party drinks. Two small oranges make a refreshing, healthful lunch box dessert. Children will welcome them as a between-meal sweet which does not dull the appetite.

Because small oranges will be so plentiful, dealers will feature them in either 5 to 8 lb. bags or 2 or 3 dozen lots for extra savings. May we suggest you pass along this information.

Remember, for juice and vitamin C small oranges are your best buy this summer.

Trademarked Sunkist Oranges are the finest from 14,500 cooperating California-Arizona citrus growers.

CALIFORNIA **Sunkist** ORANGES

BEST FOR JUICE – *and Every use!*

LET'S FINISH THE JOB—BUY WAR BONDS

tinue over long periods of time. Early after superficial burns there is a large output of plasma-like fluid through the skin. This contains a high proportion of protein. Later, during the sloughing stage of deeper burns there is a steady and severe loss of protein in the form of purulent material from the bed of granulations. These losses may reach many grams of nitrogen per day and continue until healing is complete. The protein-deficient individual is a poor operative risk. Human wound healing is also adversely affected by hypoproteinemia. Low-protein diets, too, unless special precautions are taken, are usually low-vitamin diets and it should be remembered that several vitamins, particularly riboflavin, ascorbic acid, and vitamin A, are growth factors and therefore associated with healing. Human gastroduodenal ulcers are frequently associated with hypoproteinemia. In the presence of hypoproteinemia, shock develops from very slight losses of blood and following such losses a great decrease in the already low plasma protein concentration ensues. In animals, during the course of protein depletion, the liver loses protein, decreases in size, and becomes soft and fatty. Conversely, the injured liver cannot manufacture albumin or prothrombin as well as the normal one. Thus it is seen that another vicious circle is encountered because the damaged liver cannot carry out its normal function of manufacturing proteins that it normally furnishes to the blood and which, in turn, protect it against damage. Whenever possible, protein losses or deficiencies should be corrected by oral feeding. It is not enough for the surgeon to order a "high-protein, high-caloric, high-vitamin diet." If such a diet is ordered the patient may fail to benefit from the order for any one of the following reasons: The diet presented to the patient is not as specified. The diet presented is not eaten in whole or in part because it lacks palatability, there is lack of appetite and there is a lack of nurses to encourage eating. Food eaten may be partly or wholly lost because of diarrhea or vomiting. It is common experience to find that a sick patient has "no appetite." However, if special attention is paid to the likes and dislikes of the patient and special or other nurses are available to encourage eating and to offer meals when the patient desires them instead of only at stated routine periods, many such patients will eat a surprisingly large amount of food. In the presence of actual or threatened surgical shock, the treatment of hypoproteinemia should be by the intravenous route and should consist of human blood, plasma, or albumin, or a combination of the three.

Poliomyelitis in Monkeys. It is concluded that, in contrast to the well-confirmed increase in antiviral resistance in thiamin-deficient mice, vitamin deficiency does not materially alter poliomyelitis susceptibility in monkeys.

Oleomargarine. "Misinterpretation is being placed on the action of the Council on Foods and Nutrition in withdrawing acceptance from individual brands of oleomargarine. Reports published in the periodicals devoted to the interests of the dairy industry and comment stimulated in the public press falsely attribute this action to a lack of confidence in the nutritional value of margarine. Such is not the case." The Council stated clearly that margarine is considered a general purpose food and therefore outside the Council's scope of acceptance, now limited to "special purpose" foods. For this reason acceptance is no longer granted to margarine. Confidence in the nutritional value of margarine fortified with vitamin A was reaffirmed by the Council at the time acceptance was withdrawn.

Pregnancy Complicating Diabetes. The reason for the abnormal clinical course of diabetic pregnancies may be sought in the abnormal physical, endocrine, and chemical background of the diabetic woman. It does not seem illogical to argue that these make her liable to a disturbance of the sex hormones of pregnancy, which imbalance accounts for the high incidence of early, spontaneous, interrupted pregnancies, preeclamptic toxemia, uterine inertia, and failure of lactation. Not only does this hormonal disturbance alter the course of pregnancy, but it may be responsible for the production of the abnormal fetus contributing to fetal edema, splanchnomegaly and excessive hemopoiesis. The fetal survival and the clinical course have undergone a profound change with substitutional estrogen and progesterone therapy. Spontaneous correction of the imbalance can occur. Many women without diabetes can probably compensate and correct such an imbalance. The diabetic patient with a suboptimal hormonal production and metabolism can rarely correct this imbalance spontaneously. Maternal survival in a series of 181 consecutive diabetic pregnancies was 99.5%; fetal survival 84%, varying with the occurrence of normal or abnormal balance of the sex hormones of pregnancy. If the sex hormones of pregnancy were abnormal and uncorrected, fetal survival was 50%; if they were abnormal but corrected, 90%; if normal, 96%.

Council on Foods and Nutrition. "Suggestions were made for revisions in the so-called Nutritional Platform for Candy. It was the opinion of the Council that the primary purpose of developing a nutritional story in candy advertising should be the education of the public in the judicious use of candy as a food substance rather than to increase the overall consumption of candy. It was felt that recommendations for the use of candy by young children can only be detrimental to their proper nutrition. . . .

"A technic which has been frequently used in the advertising of certain foods is the comparison of their nutritive values with several other types of foods. This method can be informative and educational or may be misleading to the reader, depending on the manner in which the material is presented. In some cases the impression may be gained that the advertised food supplies all the food values of the foods shown. This is highly undesirable. . . .

"The Council was informed of the recently determined average values for vitamin A content of winter and summer butters throughout the country. Other figures given by the Committee on Food Composition of the National Research Council show a vitaminA content of 10,000 U.S.P. units per pound for winter butter and 18,000 units per pound for summer butter. All of these figures are higher than previously determined values for butter and higher than the 9000 units of vitamin A added to each pound of margarine. This newer information on the vitamin A content of butter is of considerable interest because the minimum level of addition to margarine was set by the Food and Drug Administration to approximate that of average butter. The question was raised as to whether it would be advisable to encourage the addition of higher levels of vitamin A to margarine by extending use of the Council Seal to margarines fortified with 15,000 units of vitamin A, the equivalent of the year round average for butter. This was not considered advisable at the present time. . . . " It was felt that provision should be made for the continued fortification of all margarine, since its nutritional value is dependent on an appropriate vitamin A content. With this objective a resolution was adopted urging that all margarine contain not less than 9000 units vitamin A per pound.

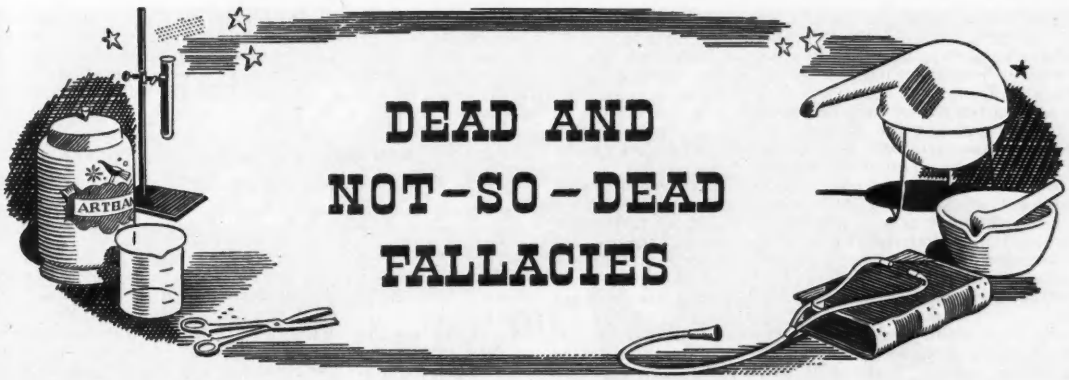
The conclusion was reached that fortification of winter milk with vitamin A is not indicated in the interests of the public health. It is the desire of the Council to encourage the marketing of high quality natural foods. This can be done in part by granting acceptance to products which meet high standards set by the Council. Tomato juice was selected as a food in which improvement should be sought by considering granting the Seal of Acceptance to brands which meet a high standard of vitamin C content, namely, 20 mg. vitamin C per 100 cc.

To encourage action by federal and state agencies the Council adopted a resolution urging that all white bread offered for sale contain the required quantities of enriching ingredients.

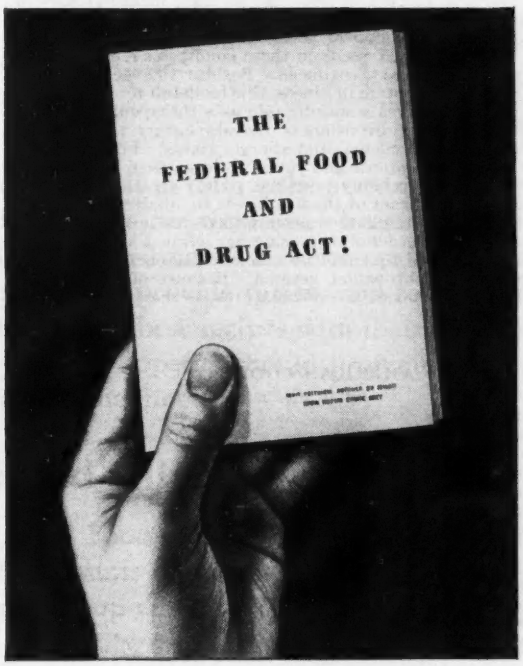
It has been the declared policy of the Council to permit use of the term "pure" on labels or in advertising of only those accepted products for which definite standards of purity exist and when the product has been demonstrated to meet these standards. Permission has been sought for use of this descriptive term in connection with evaporated milk manufactured under the sanitary code of the Evaporated Milk Association. Opinions as to adequacy of the requirements of the code for serving as standards of purity for evaporated milk were presented to the Council. Since there was lack of agreement concerning the acceptability of the controls of the sanitary code as suitable standards of purity, the proposal that the word "pure" be permitted was not adopted.

Nutritional Edema. A characteristic edema appears widespread during war and famine. This war is not an exception. None of the usual designations—famine edema, war edema, hunger edema, and nutritional edema—express adequately the nature of the disease. The relationship of lowered blood protein to the development of edema was pointed out by Starling in 1896; the protein factor has received increasing attention in the last decade. Edema from lack of thiamin occurs in the wet type of beriberi. One or both of these factors may be involved in the development of the edema observed during famine. The preponderance of evidence at present points to the dominant role of protein in the etiology of this type of edema.

Protein Nutrition in Pediatrics. In the present state of knowledge an adequate protein intake for the infant and child may be defined as one which contains all the known essential (and perhaps nonessential) amino acids in sufficient amounts and in palatable and digestible form to cover maintenance needs and to provide in addition the surplus for protein deposition within the body compatible with normal growth. Fortunately, from the practical standpoint of feeding infants and children, the protein foodstuffs of animal origin in common usage (milk and milk products, meat, fish, eggs) supply all of the essential amino acids, and some of vegetable origin (whole grain cereals, bread, potatoes, and legumes) supply most of them in varying but generally high concentrations. Besides measurements of nitrogen balance, adequacy of the protein intake for growth is judged by the rate and composition of gain in body weight. The latter may be estimated from the creatinine output in the urine and from the ratio of nitrogen retained to total accretion of body weight. As the absolute rate of growth decelerates in later infancy, the protein intake may be correspondingly reduced to the recommended daily levels of 3 to 4 gm.



AT THE MEDIEVAL FRENCH COURT the horn of the unicorn was a rare, highly prized antidote for poisoning. A piece of it was always added to the king's cup before he drank. In reality the "unicorn horn" was nothing more than ivory!



BUT A PRESENT-DAY FALLACY still exists, even in some quarters of the medical profession: "Canned foods keep because preservatives are added." *Preservatives are NOT used in the canning of foods.* They are neither needed in canned foods nor permitted by the Federal Food and Drug Act!

Canned foods keep because they've been heat-processed in permanently sealed containers. It's this heat-processing and nothing else that preserves the quality and wholesome goodness of foods.

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per kilogram of body weight. Protein intakes below 2.2 gm. per kilogram in infancy may lead to negative nitrogen balances; levels above those recommended are wasteful since there are no body depots for reserve protein, absorbed amino acids in excess of the needs for growth and maintenance entering interchangeably with fat and carbohydrate into the energy exchange; excess of dietary protein may tax the kidneys by increased excretion of nitrogenous end products, and some of the incoming amino acids may be incompletely metabolized by the young infant in the absence of added vitamins. Some observers report improvement in measurements of children of preschool and school age on higher protein intakes of 4 gm. as against 3 gm. per kilogram. Whether such acceleration is desirable raises the perennial question of maximal versus optimal nutrition, a problem which awaits further study and clarification. It seems valid to state that in the presence of undernutrition from any cause the higher allowances are preferable.

The role of proteins and their constituent amino acids for growth and health is likewise important in such abnormal states as malnutrition, obesity treated by reduction diets, epilepsy treated by ketogenic diets, diabetes mellitus, recovery from acute illness and in the course of chronic disease. Fever, starvation, and malnutrition further deplete the already meager stores of body protein, which are of lower magnitude to begin with in children than in adults and in those whose rate of metabolism is higher. The heightened needs in these conditions require attention in planning dietary regimens. Besides this generally increased demand for protein in illness, this foodstuff by virtue of its unique properties serves a specific role as a therapeutic agent in certain states, namely: disorders of the alimentary tract, conditions associated with edema, and allergic states. Food allergies are more common in infants and young children than in later life. This predilection is probably explained by the greater permeability of the intestinal tract of these subjects to unaltered protein. The most commonly implicated protein foods are milk, egg, meat, fish, and wheat. In order of increasing age, clinical sensitivity to protein is manifested by infantile eczema, angioneurotic edema, mucous colitis, and bronchial asthma. Because of the biologic nonspecificity of amino acids, such mixtures, as they become more readily available, will undoubtedly serve an increasingly important therapeutic role in these conditions. Many conditioning factors, both dietary and physiologic, influence the requirements for protein, and they must be given consideration in the dietary prescription of protein for infants and children in health and in disease.

NEW ZEALAND MEDICAL JOURNAL

Vol. 44, February 1945

*Some manifestations of vitamin B deficiency. J. A. K. Cuningham.—p. 24.
*Nicotinic acid in the treatment of some psychiatric syndromes. R. W. Medlicott.—p. 28.

Vitamin B Deficiency. Three cases of vitamin B complex deficiency and their response to treatment are described in which the patients, servicemen, had refrained from eating meat or taking any of the supplementary vitamin tablets issued to them.

Nicotinic Acid in Therapy. States of nicotinic acid deficiency can be divided into those resulting from chronic partial deficiency and those resulting from acute or even total deficiency. In the first group symptoms vary in severity from mild ones of a neurasthenic nature to those of classical pellagra. In the second group are many of the toxic confusional states, stuporose states and the encephalopathic syndrome. Six cases are reported which showed striking benefit from nicotinic acid therapy. These included one of pellagra, two toxic confusional psychoses (one postoperative and the other puerperal), two cases exhibiting toxic episodes in the course of acute schizophrenic psychoses, and a sudden exhaustive collapse following delirious mania. While the indiscriminate and expensive habit of distributing vitamins for all and sundry conditions is explored, the importance of the early recognition of the type of case in which vitamin deficiency is present is stressed. It is suggested that nicotinic acid deficiency may be more common in this country than is generally believed and that a therapeutic trial with nicotinic acid in patients exhibiting clouding of consciousness, confusion, and toxic states can be recommended, providing proper investigation of the cases is carried out at the same time.

AMERICAN COOKERY

Vol. 50, April 1945

*Eggs weather test.—p. 4.
*Nutritionists organize.—p. 4.
*Margarine survey.—p. 4.
*"Descriptive labeling" favored.—p. 5.
*Relative nutritive value of fats. H. E. Longenecker.—p. 18.
*Something to speculate upon. H. H. Darby.—p. 21.
*All-hydrogenated vegetable shortenings.—p. 22.
*Meat fat shortenings.—p. 23.
*Our American vegetable oils.—p. 24.
*Mayonnaise and other salad dressings.—p. 25.
*Fats and oils in cooking. B. Bullock.—p. 26.
*Importance of fat in food manufacture. G. T. Carlin.—p. 27.
*What's it all about—butter vs. margarine? The case for margarine. P. T. Truitt.—p. 31.
*Flavor . . . it becomes of age (Part 2). S. H. Martin.—p. 34.

Eggs. Experimental shipments of shell eggs as nonrefrigerated cargo have been made by the Army to save ship space. Reports indicate that the condition of the eggs on arrival fully justify the procedure and additional shipments have been requested.

Nutritionists Organize. The Institute of Nutrition established at Michigan State College has for its aims coordination and integration of instruction and research in nutrition. It is to serve as a liaison between industry and the college and supplement the research of the experiment station.

Margarine Survey. Sixty-one per cent of American housewives, or twice as many as in the 1941 survey by the National Association of Margarine Manufacturers, now use fortified margarine regularly, but they would have greater use for the product if it were available already colored.

Descriptive Labeling. The Macaroni Manufacturers Association at its meeting in January were in favor of descriptive labeling for macaroni, spaghetti, and egg noodles.

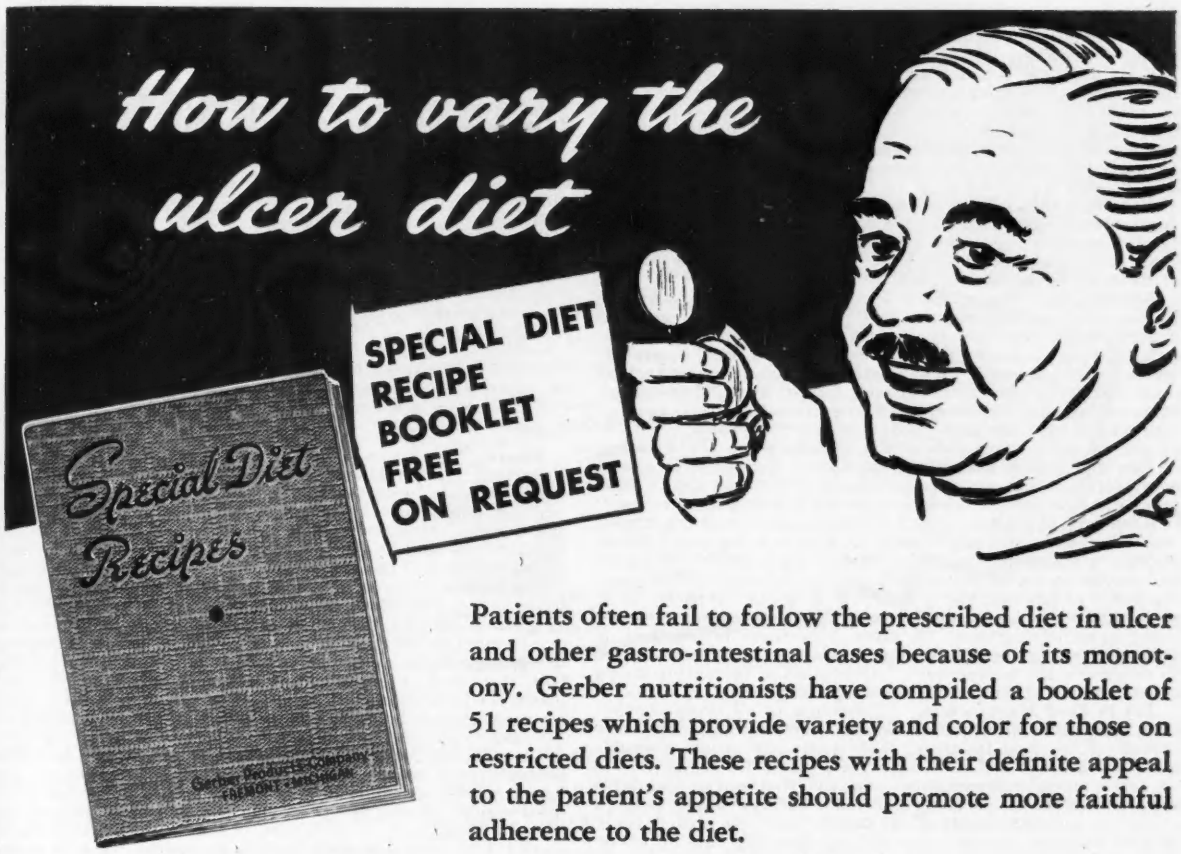
Nutritive Value of Fats. Positive evidence is lacking that fat must be provided in the human diet. However, people long accustomed to the consumption of foods containing fats do not readily change their habits. The Committee on Fats, National Research Council, have tentatively agreed that 25% of the total caloric intake per day should be supplied by fats. There is no justification at present for the type of fat or the particular fat products to make up this allowance being specified. Early studies of the dietary role of fats did indicate that differences in nutritive value existed between various fats commonly consumed. However, the difference was soon attributed to the vitamin A content of the fats in question. At the present level of fortification, it must be recognized that margarine or butter supplies only a fraction of the recommended daily allowance of vitamin A. It would require consumption of almost half a pound per day of either to meet the recommended allowance. It is therefore recommended that human beings obtain their vitamin A allowance largely from sources other than margarine or butter. Linoleic acid, widely distributed in fats and oils, strictly speaking is the only essential fatty acid. However, further research needs to be done on the role of fats in the diet.

Vitamins in Butter. Both vitamins A and D are fat-soluble. In the separation of the whole-milk vitamins, which takes place in the making of butter, the two vitamins are retained. Vitamin A content of milk varies from about 900 U.S.P. units in winter to about 1900 in summer. The content of vitamin A in summer butter is about 15,000 U.S.P. units per pound; about 7000 to 8000 units in winter. One way to offset this difference is to feed the cattle a richer vitamin A or carotene diet in winter. Additions of vitamin A concentrates, such as those used in enriched margarine, would also prevent a lower vitamin A content in winter butter.

Vegetable Shortenings. There are two types of all-hydrogenated shortenings—the older non-emulsifier type and the new improved emulsifier, or easy mix, type. Both types are made from blends of carefully selected vegetable oils, such as cottonseed, soybean, and peanut oil. In peacetime, cocoanut oil is widely used. The term "all-hydrogenated" means that all oils used in making the shortening are subjected to hydrogenation. The oils used must be carefully selected and checked, subjected to a refining process which is essentially a purification step, and next the hydrogenation process which gives the oils their two most outstanding characteristics—plasticity and stability. Pots of hydrogenated oils are then carefully blended together so that the shortening will not vary in its cooking behavior. After blending, the oils are subjected to a high vacuum processing which is responsible for the bland flavor characteristics. The final, two-step process is chilling and texturating, then packaging.

Meat Shortenings. Lard is one of the purest natural fats. It has about 25% more shortening power than other commonly used products. The three commercial classes of lard (kettle-rendered, steam-rendered or prime steam lard, and neutral lard) are classified according to the part of the body from which the fat is obtained and the method of rendering: leaf fat, from the inside of the body cavity around the kidneys; kettle-rendered, commonly from leaf fat only, or a mixture of leaf and back fats; prime steam

How to vary the ulcer diet



Patients often fail to follow the prescribed diet in ulcer and other gastro-intestinal cases because of its monotony. Gerber nutritionists have compiled a booklet of 51 recipes which provide variety and color for those on restricted diets. These recipes with their definite appeal to the patient's appetite should promote more faithful adherence to the diet.

Added Iron and Thiamine

The dishes based on the use of Gerber's Cereal Food and Gerber's Strained Oatmeal are especially recommended where appreciable amounts of iron and thiamine are necessary. Both cereals have added thiamine and other B-group vitamins derived from natural sources, and generous amounts of added iron. The percentage of crude fibre present in both cereals is so low that it is non-irritating to the gastro-intestinal tract of infants one month old.

Special Dishes

The smooth, uniform texture of Gerber's Strained Foods makes them ideal in these recipes for Soups, Salads, Souffles, Luncheon Dishes, and Desserts.

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or "steam-rendered" lard, from fat trimmed from the hog carcass. Most of the market supply is of this latter type. Neutral lard is made by rendering leaf and back fat at temperatures as low as 120° F. Recently a bland lard was developed that combines the food features of regular lard, such as high shortening power, with the other characteristics which the modern cook wants in shortening—stability, high smoke point, creamability, no odor or taste, and a pure, uniform whiteness. It is generally best to purchase packaged lard of known brands which are labeled "U. S. Inspected and Passed."

Vegetable Oils. When the war cut off the importation of most vegetable oils, we had to develop our own. At present, the principal domestically produced vegetable oils are cottonseed, soybean, corn, peanut, and olive oils. The refining process for each of these oils is described in detail.

Mayonnaise. Mayonnaise differs from other salad dressings in its heavy consistency, egg and high oil content, and preparation without heat. Structurally, it is an oil-in-water emulsion made by emulsifying salad oil with vinegar, egg yolk, salt, sugar, and spices. Salad dressing, a combination of mayonnaise and a base made with cereals such as cornstarch, tapioca flour and arrowroot, contains considerably less oil than does mayonnaise. At present, mayonnaise must contain a total of at least 66⅔% edible vegetable oil and egg yolk, whereas there is no standard for salad dressing.

Fats and Oils in Cooking. Fat, a basic ingredient in almost every form of cookery, may be classified as to use into 6 main groups: as a solvent for other flavors; as a flavoring agent in itself; in emulsions; as shorteners; as a cooking medium; and as a saponifier. The saponification process is of little importance in cooking. Foods containing little oil or fat are very much improved in taste and texture by the addition of a fat or oil. In general, the shortening power of fats and oils is determined by their capacity to be pressed into thin layers and the capacity of these layers to resist being squeezed together. Of prime importance is the smoking point of a fat. In deep fat frying, it is best to use a thermometer to determine the temperature. Absorption of fat during frying should be kept at a minimum for a superior product.

Fat in Food Manufacture. Shortenings of all types—butter, lard, margarine, oil, vegetable fat, etc.—are used in nearly every branch of the food industry. Fats contribute many desirable qualities to bread and rolls. No one-purpose fat serves best in all forms of food preparation. Special shortenings and lards are produced for the pie baker, others for the cake baker, and still others for popcorn, roasting nut meats, and also high-stability fats for prepared biscuit flours and quick-setting fats for candy and biscuit coatings.

Margarine Legislation. Since its introduction in the United States in 1874, margarine has been the subject of special state and federal legislation. If margarine is artificially colored, the tax is 10 cents per pound; if uncolored, ¼ cent per pound. Every state in the Union, with the exception of Arizona, New Mexico, Oklahoma, and West Virginia, now has some form of legislation designed to regulate the production of and trade in margarine. The most usual is the prohibition against color.

Flavor. A story of the food habits that developed among various peoples of the ancient world, with some fascinating parallels between army rationing of the Romans and our own.

BUILDINGS AND BUILDING MANAGEMENT

Vol. 45, May 1945

•Are you gambling on not having a fire?—p. 37.
•Service carts save steps.—p. 48.

Fire. The first rule in the management book on fires should be: Call the fire department first, then fight the fire yourself if you can do it safely with the equipment available. Second: Know where the fire-fighting equipment in the building is kept, and how to use it properly. Each type of extinguisher is plainly labeled and its use clearly marked, if the user knows where to look and how to interpret the markings. Third: Know where to go and what to do, should someone else report a fire, or the audible alarm system sound in the building. Most buildings have detailed instruction cards for their building employees in case of fire, but wartime replacements of personnel and management's abstraction with more immediate problems have combined to make instruction cards useless because they are not read and remembered. Check-ups indicate that many elaborate fire-safety systems have been allowed to fall apart from lack of supervision.

Service Carts. Considerable time and steps are saved for janitresses in the Security National Bank Building, Battle Creek, Mich., through the use of service carts. Each cleaning woman has a cart, containing everything necessary with which to service the offices. The night foreman, as he comes on duty, checks each truck to see that it is properly stocked and each truck is then moved to the floor where the cleaning woman starts her night's work, thus eliminating confusion and enabling the maids to get started immediately when they report for duty.

FOOD INDUSTRIES

Vol. 17, April 1945

•Guava—new vitamin C material. J. Godston and M. Chanin.—p. 74.
•New Zealand dries butterfat.—p. 78.
•What's wrong with packaged foods. H. Davies.—p. 82.
•Where food standards stand. J. Calloway.—p. 86.
•Safety made practical. R. C. Haven.—p. 88.
•Wax keeps fruits fresh. A. F. Kalmar.—p. 96.
•Meat magic.—p. 106.
•Dessert fruits.—p. 106.
•Whip it.—p. 109.
•Fruit and vegetable wrapping machine.—p. 145.
•Pork sausage production.—p. 154.
•Peanut flour bread.—p. 175.
•Soya in meat.—p. 175.
•Carotene protection.—p. 175.

Vol. 17, May 1945

•New know-how from research.—p. 84.
•What it takes to be a food technologist.—p. 93.
•New packages and products.—p. 102.
•Formulas.—p. 169.

Guava. The guava contains 10 times as much vitamin C as the orange. Tests show the vitamin C content to be remarkably stable not only in its raw state, but after stewing, canning, and jelling. The balance between the pectin and acid properties of guava makes it easier to attain the required *p*H value in products to which it is added. The guava not only contributes a desirable taste "overtone" but enhances the flavor of the companion fruit. There are many types of guavas, and types for processing are based on careful laboratory determinations. The fruit for canning should be fully mature, when vitamin content is the highest, and brought to the canning plant quickly. The first operation is dry-grading to remove green, overripe and unsound fruit. After fruit is washed, it is graded a second time and trimmed. As it leaves the inspection belt, it passes first under cold water sprays for washing and then under steam jets which scald the fruit and kill any organisms which might cause off-flavors or spoilage. After scalding, the fruit is processed in live steam at 30 to 50 lb. pressure for 15 seconds to 1½ minutes. It is then seeded and goes into a paddle-arm finisher where it is reduced to a fine purée, filled into No. 10 tins, passed through an exhaust box, and vacuum-sealed. Production at every step is supervised by a laboratory staffed with chemists and food technologists. The American Tropical Products Corp., originally built to supply holders of primary government contracts for special Army rations, produces the greater part of the guava being imported into this country. Includes formulas for guava products.

Butter Fat. When confronted with the lack of refrigerated shipping space and a greater need for edible fats overseas, the Dairy Research Institute of New Zealand developed a fat-drying process which makes unusual use of cream separators. The raw material is whey butter. Fat losses vary from 0.9 to 1.3% of that originally present in the butter. The cost of the treatment and packing amounts to less than 3 cents per pound of butter fat, most of this representing packing costs. The butter is melted under 1 lb. steam pressure, some of the serum is separated by gravity, the fatty portion centrifuged, dried under 29 in. vacuum, then cooled. Fat-containing serum from the first two separators is recirculated. The filling line includes provision for accurate weighing. Copper contamination must be avoided. For the most part, all metal that comes in contact with the butter fat is stainless steel. Butter with good oiling-off properties is desired. Whey butter has a far less persistent emulsion than creamery butter.

Packaged Foods. Packages are often the product of some designer or packaging engineer with little or no knowledge of the needs of the consumer. There should be close coordination between designers, packaging engineers, sales engineers, chemists, and others experienced in food research and merchandising. In this way, little inconveniences in packaging can be sifted out before the product arrives at the buyers' market.

Food Standards. There are definitions and standards of identity for 96 foods, standards of quality for 7, and standards of fill for 8. These definitions and standards, promulgated under the authority of the Federal Food, Drug, and Cosmetic Act, are printed in a pamphlet of 50 pages. Work on food standards has been curtailed, but it is still going on and will continue in a limited way until after the war, when the original program will be resumed. Since the publication of the pamphlet, a fill-of-container standard for canned oysters and standards of identity for a number of chocolate products have been promulgated, also definitions and standards of identity for macaroni and noodle products, but final promulgation of these standards was delayed because of the proposed addition of water-soluble vitamins and minerals to macaroni and noodle products. Standards adopted under the Food, Drug, and Cosmetic Act apply only to foods in interstate

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meat pies	Italian spaghetti
chop suey (made with or without meat)	chili con carne and many others.

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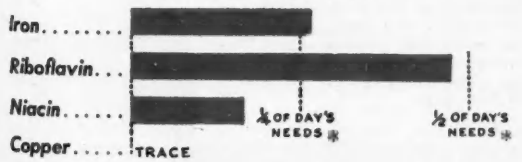
B-V *is Nutritious, Too!*

NUTRITIVE VALUE OF 1 TEASPOONFUL OF B-V
(amount used in 1 cupful of broth)



* *Based on Dietary Allowances for a sedentary man of 70 kg. as recommended by the National Research Council.*

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commerce. However, they are adopted by many states under authority of their own food laws. Eventually, all states may have the same standards for foods as those adopted for the purpose of regulating interstate commerce.

Safety. Accident prevention is divided into two parts—machines and men. Preventing accidents means not only the guarding of hazardous machinery, but getting employees to think, to use the right tools, handle equipment correctly, be good housekeepers, wear proper shoes and clothing, be careful of personal hygiene, and be considerate of the welfare of others. Methods of reducing hazards of the baking industry are discussed, and educational techniques and means of reducing lost time such as use of bulletin boards, contests, and reward systems.

Wax Keeps Fruit Fresh. The coating of fruits with wax retards the transpiratory and respiratory action and prevents loss of moisture, also other forms of deterioration visible to the eye, such as shriveling, wilting, and discoloration. The treating solution consists of a blend of waxy ingredients dissolved in a petroleum hydrocarbon solvent and sprayed on the fruit or vegetable to 0.00015 of an inch in thickness. This process is used on approximately 25% of the nation's citrus fruits and about 80% of all tomatoes grown in Texas and Florida. Cantaloupes, cucumbers, and bell peppers, which are shipped long distances to market, are also protected thus.

Meat Magic. Tendermagic (papain extract for meat tenderizing made by Vital Products Corp., New York) is a clear amber liquid containing the active enzyme and 0.1% of sodium benzoate.

Dessert Fruits. Fortissimo Marzipaned Prunes and Fortissimo Gingery Figs are processed so that the natural flavor and sweetness are retained. The prunes are pitted and then filled with marzipan mixed with dehydrated banana powder, and ground orange peel blended with honey. The figs have a filling of marzipan seasoned lightly with ginger.

Cream Substitute. A soybean protein, soybean and cottonseed oils, and corn syrup artificially colored and flavored can be whipped and used on desserts which lack interest without whipped cream. It is not suitable for use in place of the plain heavy cream.

Wrapping Machine. Fresh fruits and vegetables are automatically wrapped and labeled by a new machine. The moisture-proof, heat-sealed cellophane wrapper greatly retards spoilage. It is possible to adjust for package size. Price, weight, and date, or code are printed on the label.

Pork Sausage. *Here's How*, just published by Basic Foods Materials, Inc., 806 Broadway, Cleveland 15, contains many suggestions for processing, handling, and seasoning pork sausage.

Peanut Flour. Peanut flour, the residue after oil is extracted from hulled peanuts, is an excellent source of proteins and vitamins and can be used in amounts up to 40% of the total flour in making bread. Substitution of peanut flour for half of the wheat flour by weight gave satisfactory cookies, biscuits, and cakes.

Soybean Flour in Meat. Soybean flour in meat products can be determined chemically by isolation of the characteristic protein of the soybean, glycinin. The method is based on serum reactions.

Carotene. Sweet potatoes, when dehydrated and stored in slices, lost only 5% of their carotene in 6 months at room temperature in the dark. But the flour prepared by grinding the slices before storage lost 65% in the same time. When sweet potato flour is wanted, the dehydrated slices should be stored, to be ground just before use. Diced carrots, dehydrated and stored, lost no carotene during the first 3 months and only 25% during a second 3-month period. But when the outer surface was broken by compressing the carrots into 1-lb. blocks, the loss was 66% in 6 months.

Food Technology News. This section contains excerpts from reports to Administrator of Agricultural Research, USDA, by chiefs of various bureaus. Research on procedures for compressing dehydrated foods in order to make the saving in bulk as great as the saving in weight has been broadened. Sweet potatoes, onions, cabbage, carrots, beets and rutabagas can easily be compressed by a relatively simple procedure so that blocks contain from 50 to 150% more net weight of food than those of the same size containing the uncompressed material in bulk. Storage tests on vegetables demonstrated clearly that the keeping quality of dried carrots and cabbage can be improved greatly by further reduction of moisture content and that this factor outweighs the influence of the surrounding atmosphere. During the past year it has been discovered that uncooked wheat flour is readily and almost completely digested by a mixture of enzymic extracts from hog pancreas and the mold *Aspergillus oryzae* grown on bran. The gradual breakdown of the starch granules was actually observed under the microscope. The new dessert, Velva Fruit, differs from fruit ices and sherbets in having a much higher content of fruit purée and a much greater overrun. Ices and sherbets usually contain not more than 20% fruit purée or juice by weight; Velva Fruit, over 50%. Sherbets have 25 to 40% overrun; Velva Fruit, 80 to 100%. All of the nutritional qualities of the fresh fruit are well preserved in this new food, including a very large proportion of the fugitive vitamin C. Usually, Velva Fruit contains only pure fresh-fruit purée, sugar (enough to bring the soluble-solids up to 33 to 37% by weight), and 0.6 to 1% of gelatin in the form of a 10% solution. The milder flavored fruits require addition of a little citric acid, not over 0.25%, to give tartness.

College Food Technology Course. A 4-year course in Food Technology has been added to the curricula at Michigan State College, consisting largely of an integration of basic or fundamental subjects selected from the curricula of the schools of agriculture, engineering, and arts and science, plus 10 new subjects selected especially for the food technologist. A course in nutrition is required in the sophomore year, chemistry of nutrition in the junior year.

New Products. General Mills, Inc. combines green split peas with dehydrated onion, vegetable protein derivative, salt, soda, spices and an artificial flavoring. The 4-oz. package makes 4 to 6 servings. A prepared top and bottom pie crust, ready to bake, with both crusts rolled to the proper size for a 9-in. pie pan, each crust encased in a separate cellophane envelope and quick-frozen, is being distributed by S. Joseph Downing, 121 E. 31 St., New York 16. Apricot-papaya spread is among the many new products of American Dietaids Co., Yonkers, N. Y.

Formulas. Formulas are given for tropical water ice, "prize ring" (coffee ring), peanut fluff cake, and chocolate sponge pie. Copies of *Food Industries* may be obtained from the McGraw-Hill Publishing Company, 330 W. 42 St., New York 18.

HORWATH HOTEL ACCOUNTANT

Vol. 25, April 1945

*Effect of rationing in 1944.—p. 6.

Effects of Rationing. The effect of rationing in 1942, 1943, and 1944 are compared. In 1942 meats accounted for $24.78 of every $100 spent for food; in 1943, $13.88, and in 1944, $10.74. Lack of supply as well as rationing is responsible for this. The drastic meat cut was partially compensated for by rises in poultry from $15.51 of every $100 in 1942 to $28.41 in 1943 and $26.95 in 1944. Seafood was $8.82 per $100 in 1942; $11.29 in 1943, and $12.53 in 1944. Meats, poultry and seafood cost more in both 1944 and 1943 than in 1942. Vegetable consumption was up sharply in both 1944 and 1943, but there were decreases for green salads. This is doubtless due to rationing of salad oil. Butter has been cut from $5.31 of every $100 for food cost in 1942 to $3.01 in 1943 and only $1.00 in 1944.

HOTEL MONTHLY

Vol. 53, April 1945

*Should hotel industry establish schools for cooks and bakers? L. W. Cook, Jr.—p. 33.
A breakfast business—building idea.—p. 40.

Schools for Cooks and Bakers. Even under prewar immigration quotas, the hotel industry was not getting enough trained cooks from abroad to keep up former standards of American hotel cookery, and pending bills in Congress will practically eliminate immigration into the United States. Some hotel operators are planning on employing trained army cooks, but these were not trained according to hotel standards. The G.I. Bill of Rights should be flexible enough to provide payment toward trade school fees as well as university fees, and with the start given in the Army, many men will probably be interested in continuing their trade. The mechanics of a 9 months' course, providing actual experience in all phases of cooking, are discussed, including the teachers, laboratories, expenses, and the possibilities of hotels sponsoring students and paying part of their fees in order to assure that they will have their services at the completion of the course.

JOURNAL OF HOME ECONOMICS

Vol. 37, May 1945

Nutrition for the aging. E. L. Tuohy.—p. 260.
*Your safety program. G. T. Olson.—p. 275.
*Flavor and ascorbic acid retention in fresh Florida citrus juices. E. L. Moore, C. D. Atkins, E. Wiedenhold and L. G. MacDowell.—p. 290.
*Preventing surface darkening in certain home-canned foods. J. J. Powers and C. R. Fellers.—p. 294.

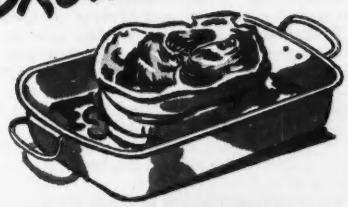
Home Accidents. Includes an excellent self-check safety survey asking such questions as: are safe holders provided for all sharp-pointed equipment; is all electric equipment so placed that the cords do not constitute a tripping hazard; are containers provided for safe disposal of waste material such as garbage, paper, and broken glass?

Ascorbic Acid Retention in Fresh Citrus Juices. The length of time freshly extracted orange juice or grapefruit juice may be allowed to stand before use in the home is limited by loss of

SAVE SHRINKAGE

And Still Give Roasts and Gravy

RICH, BROWN COLOR



Roasted at 450°F., actually lost 33% of weight.

"Slow-roasted" at 300°F., lost only 15% of weight.

Think What That Means in EXTRA PROFIT!

With meat restricted and so high priced, here's how to get up to 27% more servings.

"Slow-roast" your beef, veal, lamb, chicken at 300°F., pork at 350°F. See for yourself how much bigger they are. See how many *extra* servings you get. See how your bills for meat come down.

The only drawback is, this leaves roasts and gravy pale—not brown. To overcome this:

1. Wipe roasts before cooking with Kitchen Bouquet —so they get that rich deep brown crisp crust.

2. Add Kitchen Bouquet to gravy to give it deep brown color. Also notice how it *brings out true meat taste.* Kitchen Bouquet never smothers meat flavor with a "masking" taste of its own.

Try it for 2 weeks. Count the difference in lower meat bills—bigger profits. Start now—order Kitchen Bouquet today.

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KITCHEN BOUQUET

in pints, quarts, gallons

V-C-B helps the "help" and lowers the citrus fruit budget

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For only 5¼¢ a gallon, V-C-B provides a palatable beverage approximating the true flavor, caloric value and Vitamin C potency of fresh orange juice . . . 1,000 International Units of Vitamin C and 50 calories to each 4-oz. liquid portion!

V-C-B also saves time and labor. You just add water. This two-fold economy . . . in money and work . . . has caused many institutions to adopt V-C-B as their standard for administering Vitamin C. V-C-B is also valuable for extending fruit juices and fortifying other beverages with the essential C vitamin.

There is no spoilage or waste with V-C-B. Hermetically sealed in oxygen-free containers, it keeps indefinitely; requires little storage space. You'll like V-C-B.

SEND FOR YOUR TRIAL ORDER NOW!

Single	1 lb. 12 oz. cans. . ea.	$ 1.40
1 Doz.	1 lb. 12 oz. cans. . doz.	13.50
3 Doz.	1 lb. 12 oz. cans. . doz.	13.25
6 Doz.	1 lb. 12 oz. cans. . doz.	13.00

VITAMIN PRODUCTS DIVISION
HILKER & BLETSCH COMPANY
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palatability and the beginning of fermentation, not by appreciable ascorbic acid losses.

Surface Darkening of Home-Canned Foods. Surface darkening and the development of oxidative off flavors—prevalent quality defects of home-canned peaches, pears, and plums—were entirely prevented by the addition of l-ascorbic acid, d-iso ascorbic acid, or d-gluco ascorbic acid at the rate of 129 mg. per pint jar. The incorporation of a known amount of ascorbic acid in tablet form was demonstrated to be a simple and practical way for the housewife to add a measured amount of ascorbic acid to each jar.

PERSONNEL JOURNAL

Vol. 23, April 1945

*Self-analysis check list. R. English.—p. 378.
*Tomorrow's counselor. H. W. Wedaa.—p. 392.

Self-Analysis Check List. A check list for office managers or supervisors states that workers need recognition for the work they do, that orders should be properly given, that the reasons why should be explained, that judicious praising is one of the most effective tools of the supervisor, that criticism should be given fairly and constructively, fairness is essential, work should be planned well in advance, work should be delegated to others, decisions should be made promptly, the supervisor should cooperate wholeheartedly, learn from his mistakes and not take life too seriously.

Tomorrow's Counselor. The prime requirement of the counselor is insight into the motives and forces that affect human behavior. Second in importance is the experience of working with people under the stress and strain of the discipline imposed by a rigid industrial economy. Most helpful to a counselor is the quality of responsiveness. Subjects that should provide a good foundation for a counselor are history, sociology, economics, politics, comparative religion, psychoanalysis, psychology. Includes a selected list of readings in these subjects.

RESTAURANT MANAGEMENT

Vol. 56, April 1945

*'Teen-age cooks for wartime Detroit. H. A. Breithaupt.—p. 25.
Making your meat supply go further. A. Easton.—p. 28.
*How a college cafeteria plans and executes a thoroughgoing sanitation program. M. M. McKinley.—p. 30.
*Postwar recipes for restaurant lighting. D. Deskey.—p. 34.
How a famous restaurant keeps ahead by seeking eternally for quality. A. M. Snapper.—p. 38.
A guide to the preparation of low-point specialty cuts. L. P. DeGouy.—p. 42.
*Meat free product.—p. 46.
*Plastic food dishes.—p. 46.
*Mobile cafeteria.—p. 46.
*Selection and care of kitchen utensils.—p. 48.

School for Cooks. The motto at the Commercial Foods School, Munger Trade School, Detroit, is "Teach the student what he has to do and what he must know in order to do it." Requirements for admission are 14 years and 3 months of age, and an eighth grade education. The course is either 2 or 3 years in length, depending upon the age and aptitude of the student. Instruction is given in butchering, baking, pastry, and stores, and is broad enough to determine the aptitude of the student toward a particular division of the work. Three hours of practical training are given each day, plus 3 hours of theory, the school cafeteria serving as laboratory and the students as judges of food quality. After-school jobs are assigned in Detroit food establishments. Sanitation is stressed as well as menu planning and the special culinary and catering problems presented by food items on the menu. Girls are admitted to the course and given special training in serving, and in salad and pastry production. Postwar aims include gradual enlargement of the school's faculty, together with the installation of additional equipment and the gradual raising of entrance standards. Proof of the success of the course is shown by the fact that 98% of the graduates are now in the commercial food industry.

College Sanitation Program. The kitchen of Teachers College, Columbia University, although 20 years old and not exactly modern, possesses an invaluable asset—a reputation for cleanliness. All cleaning is under the supervision of the manager and by careful personnel selection and training she has acquired a crew with high cleanliness standards and a personal pride in having things clean. Careful scheduling has been done so that daily and weekly cleaning routines have been established and assigned to individual employees. Each employee has his own equipment, which is labeled so that no one else uses it, and adequate amounts of equipment and supplies are provided to assure thorough cleaning. Methods of cleaning equipment are also included in the article. Daily inventories of the refrigerator keep perishables moving constantly. Storage of staples is equally well controlled and standards of cleanliness in the storerooms are just as high as they are elsewhere. Employees' personal sanitation is stressed, and instructions, posters, and movies are used in employee education.

Restaurant Lighting. In the search to develop methods of holding present customers and attracting new ones, plans for new equipment for food production and service are competing with plans for remodeling and redecorating. Essential in both lines of thought is restaurant lighting, which will offer new standards of comfort, efficiency, and beauty as a result of improvements made during the war. Six illustrations and explanations accompany this article, giving possible plans for lighting and decorating that will draw customers.

Meat Substitute. A product with the appearance of tenderloin cutlets and the taste and texture of meat is now available to hotels and restaurants. Made of wheat protein, brewer's yeast and vegetable derivatives, choplets are canned in mushroom broth, require no ration points, and can be stored without refrigeration. They are ready to bread, broil, bake or fry, just as they come from the can.

Plastic Dishes. Designed for use where space is at a premium, a new line of plastic dishes made by Devine Foods, Inc., may be stacked and easily carried when full, or nested when empty. Light in weight, they are said to help foods retain their temperature, as well as being resistant to impact, abrasion, weak acids, and alkalies.

Mobile Cafeteria. Designed to supply factory workers with nourishing hot meals near their work, a mobile cafeteria has been produced by the Vacuum Can Company under the trade name AerVoid. The manufacturers state that two operators can serve 10 workers per minute at one third the cost of standard cafeteria service, and with 45 to 60% less leftover food. The company also manufactures vacuum-insulated carriers for storing, transporting, and serving hot coffee.

Selection and Care of Kitchen Utensils. A booklet issued by the Enameled Utensil Manufacturers' Council, while prepared for teachers, should also be useful and interesting to operators. Information is given on the manufacture of porcelain enameled ware and steel enameled ware utensils, and features and uses are discussed. Also included is a section on organizing the kitchen with an eye to efficiency.

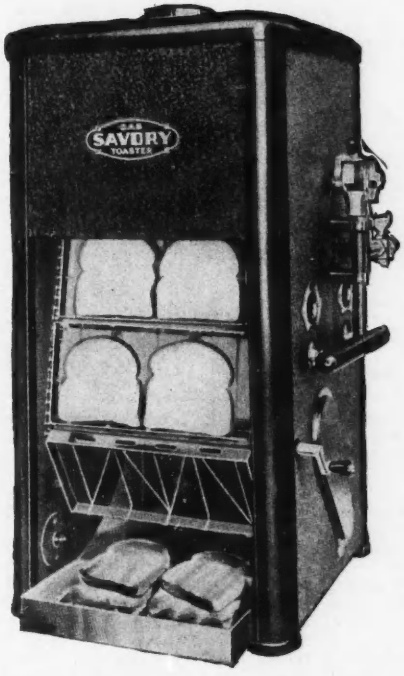
WHAT'S NEW IN HOME ECONOMICS

Vol. 9, May 1945

*Small, centrally directed school lunchroom organization. L. Normile.—p. 73.

School Lunchroom Organization. The cafeteria director of school lunchrooms at Rockford, Ill., trained as an educator as well as a dietitian and regarding her work from both standpoints, divides her time and effort as the occasion demands. She always spends the serving hour in one or another school, checking and helping with the food service. She has a desk at the Board of Education office where she works with her clerk, and an office in each school. With the advent of the WFA program the detail work became so great that an experienced hospital dietitian was engaged as a "floating manager." Managers of the cafeterias are in general women without professional training who have been promoted from the ranks. They direct all work, check deliveries, hire and train student helpers, make daily financial reports and help with part of the food preparation, such as sandwich making.

Savory "Appetized" Toast is bread at its best



Model PD, gas-operated, 360 slices per hour

The unique flavor of Savory "Appetized" toast is the planned result of a patented heat-chamber at the top of each Savory toaster that *actually pre-cooks the bread . . . appetizes its full, natural freshness.*

How is this done? When bread is inserted into the Savory toaster, it rides up a miniature escalator to be thoroughly processed in the hot, moist pre-toasting oven. The moist heat currents *caramelize* the sugar content and transform insoluble starches into easily digestible dextrins.

Then, when the bread comes down through the toasting chamber, both sides are quickly crisped to a delicious golden-brown by the double-heating elements.

The center of the toast stays soft, fresh and tender . . . it is *Appetized!*

No other toaster has this exclusive process to assure a perfect *inside* to each piece of toast as well as a crisp *outside.* When you serve Savory "Appetized" toast . . . you serve bread at its best.

Ask your dealer or write us for details TODAY.

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SOLD BY LEADING DEALERS EVERYWHERE

News Notes

Complete Files of Journal Needed. Dr. Martha M. Kramer, Kansas State College, writes as follows concerning the need for files of this JOURNAL for foreign universities: "Yenching University (offices at 150 Fifth Ave., New York) has asked me to see about securing files of periodicals useful to home economics students, as it is feared that the Japanese have destroyed the excellent library once housed on the Peking campus. Would some members of the Association like to think of bestowing their files of the JOURNAL on Yenching, or other university hit by the war? Might they like that disposition better than just packing the volumes away? I would be glad to pay transportation charges for Yenching."

School Lunch Legislation. At the request of Congressman Flannagan, the following statement (in part) was made at a House hearing, April 18, on school bills, by Alice E. Jané, representing the American Dietetic Association: "This Association believes that only through supervision of trained institutional managers can the appropriations allotted to the various schools be used to the best advantage of the children and extended as far as possible. . . . It is logical that any program dealing with the nutrition of youth of the nation should be carried on through the Department of Education. These administrative channels are already set up and are in use. Trained institutional managers have abilities and training to enable them to teach the individual school lunchroom manager good standards, cleanliness and proper cooking methods.

"Proper and sufficient equipment is needed. . . . The way food is prepared, how it is served and where it is served are all-important factors in having children eat a good diet. The American Dietetic Association will support legislation which provides for a school lunch program based on sound nutritional and educational principles."

An analysis of school lunch legislation now pending, including features of the Flannagan Bill (H.R. 2673) and the Ellender Bill (S. 503) may be obtained from the Office of Education, Federal Security Agency, Washington. The former provides that funds appropriated "shall be used to furnish agricultural commodities and products thereof and shall not include any other material, supply, equipment, or services utilized in the preparation and serving of the lunch." The Ellender Bill, which would allot certain sums to the Office of Education each year, provides that part of the funds appropriated are to be used "for the purpose of assisting state and local school authorities in establishing, maintaining, operating, and expanding school and milk programs, and related nutrition education, and in training technical and supervisory personnel, and in providing other critical needs necessary for the efficient operation of school lunch programs." Other bills included in the analysis, which is given in some detail, are the Russell Bill (S. 200) and the Pace Bill (H. R. 756).

School Lunches in Cuba. Menus for Havana's first balanced school lunches were drawn up and ready for service on the first of June, according to Dr. Gilda Peraza, director of the Children's Office of the Cuban Government, and assistant professor of hygiene and preventive medicine, University of Havana, as reported in the New York *Times*, May 17. School lunches are to be served under the auspices of the Department of Education to 300 boys and girls in one school in Havana for a centavo each. Lunches will include a hot dish, fruit, salad and milk. The program will be expanded if the experiment proves convincing to the public.

For an earlier experiment in nutrition Dr. Peraza credited the Havana Business and Professional Women's Club, which served breakfasts of orange, milk, yeast tablets and vitamins to one school's roster for 8 weeks. She declared that "they made notable gains in weight and looked glowing with health at the end of that time." However, the Department of Education returned to its old program of serving breakfasts of hot chocolate and crackers.

School Lunch Publication. A series of leaflets was published monthly this past school year by the School of Home Economics, University of Alabama, under the title *School Lunch and Nutrition News*. According to Dr. E. Neige Todhunter, head, Department of Foods and Nutrition, the leaflets have been made possible through a grant from the General Education Board for study of ways and means of integrating the school lunch and the all-school program for improving food habits and nutritional well-being of the child. Each leaflet contains a short article by a member of the faculty, covering subjects such as, How Is Your Nutrition Library?; Adequate School Lunches; Clean Dishes for Safe Food; Meat and Meat Alternates; etc. A limited number of most of the leaflets are still available for distribution.

School Lunch Recipes. A booklet entitled *School Lunch Recipes Using Canned Foods* has been prepared by Katherine R. Smith, National Canners Association, 1739 H Street, N.W., Washington 6, D. C. The recipes included are suitable for use in all schools—those using the government-aid plan of Type A, B, and C lunches, as well as the lunches sponsored by local organizations. Pattern menus for Type A and Type B lunches are given, followed by the recipes. General suggestions include canned soup combinations, soup garnishes, and methods of preventing waste.

Dietetics as a Profession. A note from Gladys E. Hall advises that Mrs. Phyllis R. Yerrick, editor of *Vocational Guide*, has listed *Dietetics as a Profession* in the publication and that it has also been included in the "100 Best." Mrs. Yerrick states that "the '100 Best' is a list recently published by Science Research Associates, of free and inexpensive guidance materials which we consider the best of all the 574 items listed in the *Guide* from September 1944 through May 1945."

National Program on Nutrition Proposed. A booklet entitled *A Food and Nutrition Program for the Nation*, prepared by Dr. John D. Black, Harvard University, and issued by the National Planning Association, contains a proposal that the President appoint a special committee of public officials and experts to make recommendations on government organization for nutrition and that this same group serve as the United States representation in the International Food and Agriculture Organization. Government measures as outlined in the booklet would include nutrition education for all school pupils, and the use of school luncheons and school gardens; expansion of the present program of home demonstrations among rural families and its ultimate extension to urban families; systematic clinical examination of children in the public schools for nutritional and health deficiencies; systematic surveys of population groups; guidance for in-plant feeding; various forms of supplementary food distribution. Among possible alternative solutions suggested were: a Department of Food, along the lines of Great Britain's Food Ministry; "general welfare" departments in the Federal and State Governments; or a national food and nutrition board to "integrate activities relating to food and nutrition."

National Food Situation. A chart in the April–May *National Food Situation*, prepared by the Bureau of Agricultural Economics, USDA, compares the approximate number of calories available in prewar and wartime civilian food supplies per person per day in the United States, Canada, and European countries. Subsequent tables show estimated prewar and wartime civilian per capita supplies of various classes of foods in the different countries. In that for meat, poultry and fish, Canada heads the list with 1943–44 supplies 127% of prewar, while Belgium is at the bottom with 43%. Figures for the other countries are: United States 115%, United Kingdom 82%, Denmark 81%, France 65%, Netherlands 44%, Norway 68%, Finland 50%, Germany 69%, Austria 57%, Poland 69%. These figures do not tell the whole story, however. For example, in Poland the per capita consumption of meat, poultry and fish before the war was 48 lb. per year; during the war it was 33 lb., as opposed to Belgium where the prewar figure was 129 lb., the wartime figure, 56 lb.; the Netherlands with 115 and 51 lb., respectively; and the United States with 168 and 194 lb., respectively. During the war, according to this report, cereals and potatoes furnished a larger share of the calories in Europe, and all the European countries had fewer calories available in 1943–44 than before the war. European supplies decreased further in 1944–45 except possibly in the United Kingdom and Soviet Russia. In 1945–46, continental Europe will have the least domestically-produced food since the war began. Moreover, owing to maldistribution within the countries, European farmers may be consuming 25 to 30% more than nonfarm families. Other tables in this issue show net storage movement of frozen fish, United States and Alaska, 1939–41 average, and 1943–45; supply and distribution of canned baby foods and soups, commercial pack, for 1935–45; production of major food commodities, 1935–39 average, 1942, 1943, 1944 and 1945, with percentage comparisons; and retail food prices and total cost of living, United States, by months, 1942–45.

According to this report, the over-all food supply for civilians in 1945 will be from 5 to 7% smaller on a per capita basis than last year's record consumption—but about 2 to 4 % above the average level in 1935–39. Difficulties of distributing the smaller supplies of some foods among civilians will be increased. Prospective food supplies are large enough to meet somewhat larger noncivilian requirements than in 1944 and still maintain a higher level of civilian consumption than in prewar years. The principal reduction from 1944 will be in slaughter of meat animals. Imports have furnished less than 5% of our food since we entered the war, and the import situation is not expected to improve very much this

TO COMBAT THE EFFECT OF THE *Anorexia*

Waning appetite is one of the greatest obstacles to the successful management of tuberculosis. For as anorexia develops and food consumption drops, the patient loses the benefit of the most potent known therapeutic measure—a high intake of calories and essential nutrients.

An effective means of combating anorexia is the use of appealing foods which are easily borne, do not produce digestive disturbances. Ovaltine readily measures up to these requirements. Made with milk, this food drink is unusually delicious, and appeals to the appetite. It provides variety and an element of the unusual in the dietary, hence is appreciated by the patient. Furthermore, Ovaltine is highly advantageous from a nutritional standpoint. Its rich store of metabolic essentials is indicated by the table shown below. Three glassfuls of Ovaltine daily, readily accepted and enjoyed, appreciably aid in achieving the objective of a good nutritional status.

THE WANDER COMPANY, 360 N. MICHIGAN AVE., CHICAGO 1, ILL.

Ovaltine

Three daily servings of Ovaltine, each made of ½ oz. Ovaltine and 8 oz. of whole milk,* provide:

PROTEIN	31.2 Gm.	VITAMIN A	2953 I.U.
CARBOHYDRATE	62.43 Gm.	VITAMIN D	480 I.U.
FAT	29.34 Gm.	THIAMINE	1.296 mg.
CALCIUM	1.104 Gm.	RIBOFLAVIN	1.278 mg.
PHOSPHORUS	.903 Gm.	NIACIN	7.0 mg.
IRON	11.94 mg.	COPPER	.5 mg.

***Based on average reported values for milk.**

year. Among the items in larger supply than last year are eggs, fluid milk, skim milk by-products, commercial supplies of some fresh vegetables, canned fruit juices, fresh and frozen fish, and the grain products with the exception of rice in some areas.

For most of the foods, civilian supplies of which are expected to be less in 1945 than in 1944, per capita supplies will be about as large as in the prewar years 1935–39. From the nutritional standpoint, the increased consumption since 1935–39 of fresh vegetables, fluid milk, eggs, canned fruit juices, citrus fruit, and whole grain and enriched cereal products will provide more of the essential nutrients except calories than will be lost through reductions in other foods, compared with prewar years. Prospective food supplies will be more than adequate in all parts of the United States to meet all essential food needs according to present dietary standards.

The shortage of fats and oils is not likely to be materially eased before late spring or summer of 1946. Present indications are that per capita civilian supplies of all edible fats and oils in 1945 will be between 38 and 40 lb. (fat content except for butter which is on an actual weight basis), compared with 44.7 lb. in 1944 and 48 lb. in prewar years. Principal reductions are in butter and lard.

Large quantities of dry beans and peas will be available to meet the increased requirements for liberated areas. A major problem is transportation across the United States and the Atlantic. The United States also has enough wheat on hand to supply as much as 250,000,000 bu. for feeding the liberated people of Europe and our Allies until our new crop is harvested.

Sugar supplies available to civilians will be much smaller during the remainder of 1945. Per capita civilian consumption, which averaged 89 lb. in 1944, is expected to be reduced to an annual rate of about 71 lb. for the last 9 months of 1945.

The year 1945, more than any other since the war, finds the U. S. fisheries occupying a key position in our domestic food front. Supplies of all fish for human consumption by civilians in 1945 may approximate those of 1944 (7.9 lb. per capita, dressed weight equivalent). The figure for 1935–39 was 12.9 lb. During the war there has been a noticeable trend towards increased consumer acceptance of frozen fish. Increasing interest is also shown by the fishing industry in air transportation as a more efficient method of moving perishable fishery products to market. In the future, a greater variety of fishery products will be made available to the American family, not only in the coastal areas, but throughout the country.

Total meat production in 1945 is indicated by the Bureau of Agricultural Economics, in the *Livestock and Wool Situation*, to be about 22.5 billion pounds (dressed meat basis), and 9% less than 1944, with production of beef and veal about 5% larger, pork production 20% smaller, and lamb and mutton, 10% smaller. This output, however, would still be about 39% above the average for 1935–39. On June 2, WFA reduced the quantities of beef and pork to be set aside for government purchase, thus releasing slightly larger quantities for civilian use.

Acreages of truck crops planted in 1945 for commercial processing, according to latest reports of processors' intentions, are indicated to be the following approximate percentages of the acreages planted in 1944: green peas 112, sweet corn 104, snap beans 96, tomatoes 104%. Prospective acreage of potatoes in 1945, at average yields, would produce a crop slightly larger than in 1944, but still moderately short of currently estimated requirements; sweet potatoes, considerably smaller than both the 1944 crop and estimated requirements.

War requirements for butter and cheese are higher than at any previous time, WFA announced May 18. For this reason, set-aside quotas for government agencies are somewhat higher than last year for June and July.

Government requirements for milk powder, including both spray and roller process, are increasing and large supplies are urgently needed for overseas shipment. Manufacturers of spray process nonfat dry milk solids were required by WFA to set aside for government purchase 75% of their production during June and July.

With a smaller egg production this year than last and a small into-storage movement this spring, egg supplies may be insufficient to meet demand at ceiling prices after the flush production season. Total chicken meat production for 1945 appears to be less than in 1944, with farm chicken production declining more than the increases in commercial broiler output. Because of increased requirements for chicken by the armed forces, civilians probably will receive significantly smaller quantities than in 1944. During the first 3 months of 1945, civilian consumption was at the rate of 400 eggs per person per year, as compared with the previous record of 351 in 1944.

WFA is arranging now for the allocation of some 28,000 tons of dates to be imported from Iraq and Iran so that the supply can be packed, shipped and distributed in the United States in plenty of time for the holiday season, according to USDA's *Food and Home Notes* for May 21. Dates from abroad usually arrive in boxes containing about 70 lb. and are repacked in this country.

Rationing and Price Control. OPA launched a new intensive attack on the meat black market May 1, when Congressional approval of sufficient funds to enable the agency to enlarge its small meat enforcement staff, coupled with the Government's new meat program, cleared the way for a nationwide campaign. The program includes: a vigorous drive against black market operations starting with the slaughterers and covering wholesalers, hotel supply houses and retail butchers; additional survey visits by price panel volunteers in each community to retail stores. Governors and mayors throughout the country were requested to support OPA's efforts to wipe out the black market. OPA will intensify investigations leading to criminal cases to be referred to the Department of Justice. The most drastic penalties available, including jail sentences, will be sought. A series of meetings will be held throughout the country with businessmen in the packing industry and hotel supply houses, chain store officials, supermarket managers and independent retailers to assist OPA in protecting the meat industry against depredations of black market operators.

The April *Demand and Price Situation*, USDA, contains a chart showing that fluctuations in wholesale prices in the United States and Canada have been quite similar since 1929 (gradual rise from an index of 100 in 1939 to 130 at beginning of 1944). Prices in the United Kingdom rose much more in the same period, to about 168%, and in Switzerland to 218%.

Why the Meat Shortage? A brochure distributed to editors by OWI offers as the primary reasons for the critical shortage of meat: the decline in meat production, the increase in family income, the fact that the distribution of meat across the country is "badly out of balance" (since meat which is not federally inspected may not legally be shipped across state lines), and the activities of black marketeers who do not observe ceiling prices. Steps to improve the situation have been taken as follows: control of farm slaughter, control of non-federally inspected commercial slaughter. It is hoped that these steps will provide more equitable supplies for deficit-producing areas which depend upon interstate shipments for their fair share of available meat and to aid procurement of meat for the armed services and other war claimant agencies such as lend-lease. The more even distribution of civilian meat supplies will not be immediately apparent. At the earliest, it is expected to be felt in the fall when a good bit of the effect of new distribution plans will become apparent coincident with a seasonal increase in the marketing of livestock. It is stated that the government actions of themselves will not result in a completely fair and equitable distribution of meat. They will be effective to the degree that they secure the voluntary compliance of those who produce, process, and distribute the meat supply, as well as the consuming public in its support of the rationing and price control program.

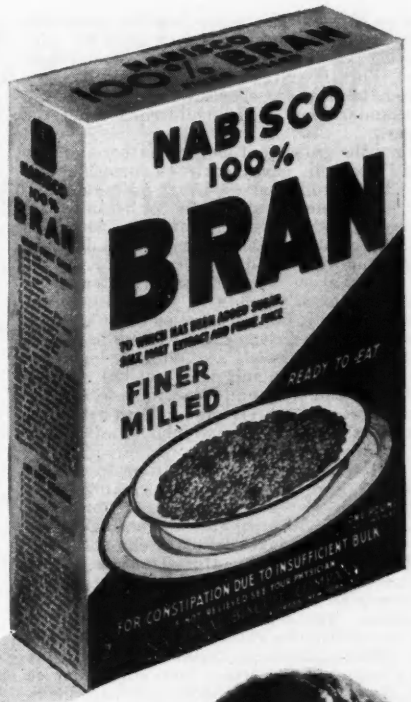
Where's All Our Food? Reprints of this compilation of articles which appeared in the New York *Post* as a result of that paper's "exclusive investigation" of the subject of food shortages are available at 10 cents per single copy or $3 per 100 copies from Food For Freedom, Inc., 1707 H St., N.W., Washington 6.

New Monthly Review on Nutrition. According to information transmitted through the Institutions and Materials Section, American Republics Branch, Division of Cultural Cooperation, Department of State, Washington, the National Institute of Nutrition, Montevideo, Uruguay, is to publish a monthly review concerning the principal activities of the Institute and articles on the subject of nutrition.

Home Canning Program, 1945. A kit of home canning information materials, designed to give a boost to the home canning program, is now available to local leaders of women's organizations, youth groups, and others in key positions on application to the War Food Administration, Washington 25. Included are: factual material about the need for home canning and sugar for canning, sample news releases and background material for feature stories, sample radio scripts, and spot announcements promotion, ideas for local programs, and a number of booklets for canners on oven drying, freezing fruits and vegetables, etc. all of which have been described or listed in previous issues of this JOURNAL.

Better Gardens, Better Nutrition for Children. Better nutrition for children in many American families depends on more home-produced food. This is the conclusion reached by nutritionists of the Maine Experiment Station as a result of 10 years of study of the nutritional status and food habits of children in that state. They suggest that parents need constant education concerning the advantages of home gardens and home food preservation to offset the increasing tendency to buy everything the family eats. Because more planning and effort are required to produce food at home than to buy it, and because markets today offer so many palatable and labor-saving products, families are inclined to take the easy way of buying more food and producing less of their own.

Delicious
in so many ways
when
DIET-BULK
is needed



FINER-MILLED
to make bran
particles smaller

WHEN lack of diet-bulk is a cause of constipation, Nabisco 100% Bran is a well-received addition to the diet. This crisp, "crunchy" cereal is delicious for breakfast . . . or baked in cookies and muffins easily prepared from recipes on each package.

Nabisco 100% Bran provides bulk food that contains all the nutritive factors of the whole bran—the valuable iron and phosphorus, the important Vitamin B_1.

Finer-milled, bran particles are broken down, made smaller. Mild and gentle in action.

Nabisco 100% Bran is sold in pound and half-pound packages in food stores everywhere.

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Yet the Maine studies showed that many families above the relief level cannot afford to buy all the foods they need for adequate nutrition while other families who can, prefer to spend their money in other ways. For these reasons, many family diets checked in the study were inadequate, especially in vitamins and calcium, and health examinations of the children showed the effect of these shortages.

The nutritionists urged the growing of more tomatoes and also cabbage, rutabagas and broccoli, particularly to furnish meals with more vitamin C. Their studies showed that not more than one child in seven had the minimum allowance for vitamin C—at least one serving a day of foods rich in this vitamin. Only one fourth of the children had tomatoes or citrus fruits each day, yet these are among the most important foods for vitamin C.

Home gardens also should grow more green and yellow vegetables to furnish diets with more vitamin A, especially greens such as kale, spinach, turnip or rutabaga tops, and also carrots, winter squash, leaf lettuce, green beans and green peas. In northern states like Maine, family meals are likely to include a good many potatoes and dried beans and peas, but not enough green and yellow vegetables; therefore children run short of vitamin A. The minimum allowance for vitamin A is at least one serving a day of a green or yellow vegetable, which also adds some vitamin C and important minerals to meals.

Families need to understand how important it is to put up fruits and vegetables by the best methods of preservation to ensure an adequate, year-round diet. More canning of tomatoes, green beans and peas is advised. Where possible, freezing preservation is recommended because it saves labor, keeps the fresh flavor of foods, and holds nutritive value. Home gardens should also include extra vegetables for winter storage—rutabagas, cabbage, winter squash and carrots.

Veterans Administration. The report of a subcommittee of the American Medical Association on establishment of a Medical Corps in the Veterans Administration recommends further study of the two bills before Congress to ascertain their suitability in meeting "(a) the needs of the veterans for a comprehensive medical and hospital service of a high order of excellence; (b) the needs of the Veterans Administration for a flexible, effective, and professionally superior organization in the health care of the veterans; (c) the needs of the various professional groups in medicine and its related professions for an efficient organizational instrument within the Veterans Administration for channeling to the veterans the very best care which the various professions have to offer." After lengthy discussion, the committee endorsed the intent and provisions of the Rogers Bill (H.R. 1661) "with modifications that are quite generally recognized as necessary."

Veterans. According to the April 9 letter of the Washington correspondent of the *Journal* of the American Medical Association, the commander of the Veterans of Foreign Wars, Omar B. Ketchum, commenting on charges of inefficiency and neglect in veterans hospitals, stated: "Many veterans leave Veterans Administration hospitals against medical advice because compensation or pensions are reduced during hospitalization." He explained that veterans with no dependents, who are receiving compensation or pension, are limited in the amounts payable during hospitalization. This results in veterans leaving the hospital "before recovery is complete." In illustration, he said that a service-connected disabled veteran, without dependents, who may receive $100 a month is limited to $20 a month in cash benefits while hospitalized. A non-service-connected pension is limited to $8 a month for the man without dependents. Mr. Ketchum said that Brig. Gen. Frank T. Hines, veterans' administrator, was to be commended for his forthright and open invitation to veterans' groups to make independent or joint surveys of every veterans hospital in the country.

Medical Department Dietitians Organize in Territory of Hawaii. Medical Department Dietitians under the Central Pacific Base Command have now become an organized group. Monthly meetings are held and attended by all dietitians in this area, as well as Army nurses who are acting as dietitians in hospitals where the Table of Organization does not provide for a trained dietitian or where actual shortage of dietitians exists.

First Lt. Dorris Forbes, head dietitian at the 22nd Station Hospital, has been appointed consultant dietitian and is currently in charge of the group meetings. First Lt. Winifred Halvorsen, 219th General Hospital, was elected secretary, and First Lt. Katherine Kratoska, 218th General Hospital, was elected to write news notes for the group. A committee was appointed to draw up proposals to help solve the problems as a new branch of the Medical Department, with the following members: First Lts. Velma Knearl, 219th General Hospital; Winifred Halvorsen, 219th General Hospital; Katherine Kratoska, 218th General Hospital; Rosemary Rajkowski, 147th General Hospital; and Pauline Clayton, 76th Station Hospital (DS). Another committee appointed to plan programs includes: First Lt. Marjorie Stone, 165th Station Hospital, and Second Lts. Mew Ung Chock, 218th General Hospital, and Annaleen Hemmer, 233rd General Hospital.

Reports of the meetings are to be sent to the dietitians in the forward areas.

Army School for Student Dietitians. Eight apprentice dietitians have completed one year's internship at Fitzsimons General Hospital, Denver, and received their diplomas from Brig. Gen. Omar H. Quade, Commanding Officer. The course is under the direction of Capt. Mildred Allbritton.

The following were commissioned in the Medical Department, Army of the United States: Norma J. Madden, Allendale, Ill.; Alice M. McNeer, Montrose, Colo.; Betty C. Rea, Baden, Pa.; Helen Wright and Gertrude I. Perlmutter, Denver; Agnes B. Cassity, Selma, Ala.; and Barbara K. Reynolds, Medford, Mass.

The following are expected to complete the year of internship and be commissioned in November 1945: Ruth Bonfield, Chicago; Esther Child, Malone, N. Y.; Althea Edler, Sheboygan Falls, Wisc.; Mary Faulkner, Evanston, Wyo.; Rosamond E. Hughes, Brattleboro, Vt.; Wilma Jones, Oxford, Ohio; Genevieve Joseph, Brooklyn, N. Y.; Marguerite Kittams, Great Falls, Mont.; Mary L. Laudon, Elm Grove, Wisc.; Mabel Parker, Beaver Dam, Wisc.; Beatrice M. Watcke, Stratford, Conn.; and Mary O. Huggins, Spartanburg, S. C.

On May 1 another group of eighteen student dietitians began their year of internship, upon the completion of which they will be eligible for commissions. The class includes: Elizabeth Alexander, Frances M. Beck, Frances K. Biaett, Dorothy A. Brennan, Clara L. Colley, Margaret E. Conover, Elizabeth Cornwall, Florence R. Grimas, Joyne Anne Herod, Maryanne Kervin, Wyvonne Loven, Bernadine H. Madison, Natalie R. Nathan, Ruth A. Noble, Anne Marie Pedersen, Eunice R. Powers, Eleanor M. Saunders, and Jean C. Sullivan.

Public Health Nutrition Course, University of Brazil. The University of Brazil soon will initiate a series of new courses in public health nutrition, according to a plan worked out by Dr. Benjamin Albagli, associate professor of the University, and reported by the Office of Inter-American Affairs. Professor Albagli has just completed a year's postgraduate studies in physiological chemistry in this country on a grant from the Institute of Inter-American Affairs. The courses he intends to conduct will be offered on the postgraduate level to physicians and medical students and on the undergraduate level to nurses.

Industrial Feeding. The May *Industrial Nutrition Service*, published by WFA, reports that 7 members of the British Society of Caterers to Industry, traveling under the sponsorship of the British Ministry of Food, were guests recently of the Industrial Nutrition Committee of the Essex and West Hudson Counties of New Jersey on a tour of the Thomas A. Edison plant in West Orange. The visiting committee also observed feeding operations in the Sperry Plant, Long Island, and the Brooklyn Navy Yard. Plants in Chicago, Detroit, and the West Coast are also included in the itinerary, which was planned with the aid of WFA. Several hundred plants in the British Isles are said to be serviced by these 7 food operators. One feature of their operations is a "pre-plate service." Plates are filled and kept in warming ovens until the arrival of the patrons. By this method, 20 people a minute can be served.

Food Standards. The Food and Drug Administration announced a mid-June meeting of the Food Standards Committee, Food and Drug Administration, the first since the beginning of the war. Recommendations were made on the following: amendment of the present definitions and standards of identity for Cheddar, washed curd, and Colby cheeses to require that they be made from pasteurized milk or that they be stored for specified periods before they are marketed; adoption of definitions and standards of identity for additional cheeses such as Swiss, brick, Limburger, etc.; adoption of definitions and standards of identity for various process cheeses and related products, such as cheese foods, cheese spreads, etc.; adoption of definitions and standards of identity for various foods prepared from corn, such as corn meal, bolted corn meal, degerminated corn meal, corn flour, enriched corn meal, enriched grits, etc.

Hydrolysates for the Starving People of Europe. Hydrolysates for the starving people of war-stricken countries is being prepared by the ton in England and the United States, according to a report in the New York *Herald Tribune*, May 26. American Relief for Holland, Inc. announced that it had sent to Holland a shipment of almost 6 tons for persons in advanced stages of starvation. The British-made product is included in "F Treatment Packs" (the "F" stands for famine), which contain other nutritional items and equipment for administering the hydrolysates through the veins or the nose in cases where they cannot be taken orally. Dutch teams, specially trained and including large numbers of volunteers from Belgian and London medical schools, are in Holland administering the foods.

Food for the Netherlands. According to an announcement made by the Netherlands Food Purchasing Bureau in New York, reported in the *Food Field Reporter*, May 14, food and clothing to last every person in Holland for 4 months had been piled up in Argentina, Canada, Brazil, Santo Domingo and the United States.

"Whoops! I got out of another tight spot!"

SAYS GRACIE GREENHAND*

Gracie: Good grief, I didn't make enough chocolate filling for the pie shells! I'm *four* short!

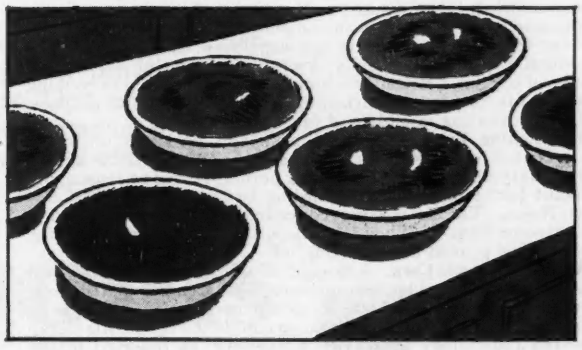
Marge: I'll help you, Gracie—I've finished my salads. Where's the Jell-O Chocolate Pudding?

Gracie: Jell-O Chocolate Pudding? I'm making *pies*, Marge—not pudding.

Marge: Don't tell me you've never used Jell-O Puddings for pie fillings! They're quick as a wink—and delicious!

Gracie: This is wonderful! Thank heaven the package told the exact amount I'd need to fill these shells!

Marge: Don't they look swell! I'll see that the boss gets a piece for dinner.



Gracie: There they are—done in 8 minutes! All ready and cooling for the dinner hour. Thanks for the tip, Marge.

Marge: Oh, you're welcome. Now that you know, you can use Jell-O Puddings for your pie fillings *all* the time.

*Fictitious Name

Dietitian: Your chocolate pie was delicious tonight, Gracie. Much better than the ones you made last week!

Jell-O & Jell-O Puddings

SEND FOR EASY WARTIME RECIPES!

New and **Free!** A grand booklet of popular, inexpensive desserts that the greenest help can make. Includes a useful, all-purpose Jell-O recipe using any combination of fruits, and loads of other recipes and suggestions for easy, wartime Jell-O and Jell-O Pudding desserts!

Just ask the GF Salesman, when he calls, for the book, "New Desserts," or address the Director of the GF Institution Service, Miss Bertha E. Nettleton, General Foods Corporation, 250 Park Avenue, New York 17, N. Y.

Already the movement of these supplies abroad had started and was to have been completed by July. Lard was kept perfectly fresh for 3½ years by means of a special preservative. Similarly, by fumigation rice was kept intact for the same length of time in a New Orleans warehouse. According to the report, by reason of this foresightedness the entire Dutch nation during the next 4 critical months will probably be better maintained than any other country in Europe.

Sparing Sugar. Tips for sparing sugar in large-quantity food preparation and information on using sugar substitutes are included in a new leaflet, *Saving Sugar in Industrial Feeding*, distributed free by WFA, Washington 25, and from regional WFA offices. A dozen sugar-saving recipes in proportions of 100 servings are given.

Food Containers Critical. A countrywide shortage of food containers of all kinds is reported by WFA. Wooden and fibreboard containers for fresh fruits and vegetables, dairy and poultry products, meats and processed foods, are all in short supply. It is urged that all fibreboard boxes and other containers should be salvaged by re-use, or by turning them in to the wastepaper drive to be used with wood pulp for new containers. Egg cartons which are clean and in good condition should be turned in to grocers or local suppliers.

Pea-Picking Time. Tests at the Utah Experiment Station on two varieties of peas—Early Perfection and Late Perfection—showed that peas picked when fully developed in plump pods but still very tender, with not a single hard pea in the pod, are richest in carotene and also in vitamin C.

Vitamin C Tablets in Fruit Canning. Tablets of vitamin C (ascorbic acid) may be used to hold color and flavor in home-canned peaches, pears, and plums, according to scientists of the Massachusetts Experiment Station. They explain that this substance acts against oxygen, so prevents the unpleasant darkening and change of flavor in fruit at the top of the jar where it comes in contact with air. Tablets are put into the jar before it is filled with fruit, according to USDA home economists. The cost is less than 2 cents per pint jar (1¼ tablets of 100-gm. potency).

The scientists found three related acids—ascorbic, iso-ascorbic, and gluco-ascorbic acid—all entirely successful in preventing surface darkening and off-flavors in canned peaches, pears, and plums, and helpful in canned apple sauce. At present only ascorbic acid is on the market in convenient tablet form, but after the war the others, which are less expensive, may be available. Iso-ascorbic acid is especially desirable because of its quicker uptake of oxygen. Recently vitamin C has been used in packing frozen fruits to prevent darkening, as an antioxidant in beer, and for preventing rancidity of fat.

Dip-Coating Frozen Foods. Blocks and packages of frozen foods, coated in the Western Regional Laboratory of USDA, held their quality and food value for long periods stored at reasonably constant low temperature, according to the May 28 *Food and Home Notes*. The film coating reduced oxidation, loss of moisture, and "freezer burn." When the frozen food had thawed slightly, the covering proved easy to strip off.

Aerofilm Protects Corn. A special "aerofilm" wrapping was used to protect 40 lb. of golden bantam corn (on the ear) recently flown from Tampa, Florida, to Detroit, as a part of the experiments in air shipment of perishable foods being conducted by the Air Cargo Research Laboratory at Wayne University, as reported in the *Food Field Reporter*, May 14. Picked one afternoon, the corn was served on Detroit tables the next night. The corn was submitted to cooking, storage and marketing tests by Dr. Spencer A. Larsen. In the marketing test, at a downtown supermarket, the 40 lb., retailing at 9 cents an ear, was disposed of in 2 hours. Ears shipped unwrapped for the test were badly withered. A consumer panel headed by Jane Porter of the Women's City Club made taste tests on the corn.

Effects of Fatness on Tenderness of Lamb. A study undertaken at the Texas Agricultural Experiment Station, College Station, and reported in Bulletin 661, October 1944, showed that neither fatness nor thinness can be used as a guide to tenderness in buying lamb. In some of the experiments set up to test the theory, the fatter or full-fed lamb was somewhat more tender than the limited-fed one, but in other experiments the limited-fed one was more tender. No attempt was made to study the effect of fatness on factors of palatability other than tenderness.

More Eggs. The Poultry & Egg National Board, 308 W. Washington St., Chicago 6, has published a booklet entitled *Eggs Every Day a Different Way*, also a leaflet showing how eggs save ration points, and a sheet of tips on selection, care, nutritive value, and preparation of eggs. A third compilation entitled *Dried Eggs*, also available, gives the nutritive value, reconstitution process, and a number of interesting recipes.

Cost of Medical Care. USDA Miscellaneous Publication 561, recently published, is titled *What Farm Families Spend for Medical Care*, prepared by BHNHE and presumably available from that office. *Health Care for Americans*, a 32-page pamphlet by Dr. C. E. A. Winslow, Professor of Public Health, Yale Medical School, published by the Public Affairs Committee, Inc., New York, price 10 cents, presents a plan for "even better medical care than we now dream of," by means of national health service, locally administered and supported by social insurance and general taxation—in short, a system of state, or what is sometimes called "socialized," medicine.

Professor E. V. McCollum. According to word received from Ernestine Becker, his assistant, Professor McCollum is making a good recovery following a long and severe illness at Johns Hopkins Hospital. According to Miss Becker, he is doing very well, due, as she says, "to vitamins and right living!"

Dietitian Commemorated. The late Mary A. Foley's name was recently inscribed on the marble tablet in the Memorial Lobby of the Mayo Clinic with those of other members of the staff who have died since the Mayo Clinic was founded. As consulting dietitian, she held the rank of assistant professor of medicine (dietetics) and was one of the few non-physician members of the Mayo Clinic staff.

Dr. MacEachern Honored. According to the *Journal* of the American Medical Association for May 26, the Johnson and Johnson Research Foundation has created an annual award at Northwestern University consisting of a silver medal and an honorarium of $250 to be known as the Malcolm T. MacEachern Award. The award honors Dr. MacEachern, associate director of the American College of Surgeons and director of the program in hospital administration at the school. Dr. MacEachern for some years has been a member of the Advisory Committee of the A. D. A.

Retirement of Dr. Murlin. John R. Murlin, Ph.D., professor of physiology and director of the Department of Vital Economics, University of Rochester School of Medicine and Dentistry, Rochester, retires July 1.

Elspeth Bennett Joins Staff of Ralston Purina Company. Miss Bennett, member of the A. D. A. and formerly assistant professor of foods and nutrition at Syracuse University, has accepted an appointment with the Ralston Purina Company, St. Louis, as manager of the Nutrition Service. She will be in charge of a complete educational program designed to acquaint students as well as professional groups with cereal products and will work closely with the plant laboratories on the nutritional improvement of present commodities and development of new products. Miss Bennett is a graduate of the University of Tennessee and received her master's degree at Columbia University. Her recent presentation of a "Visual Nutritive Values Set," an educational device for graphically demonstrating the nutritional value of foods, has attracted the attention of educators and nutrition authorities.

Nell Clausen Contributor to Revista Medico-Social (São Paulo, Brazil). Under the title "*As dietistas e seu futoro*," Miss Clausen, dietitian of Children's Hospital, Milwaukee, and 1943–44 President of A. D. A., tells of the future possibilities for the dietitian in the February–March 1945 issue.

Army Dietitian Returns From New Zealand. The New York *Daily News* for June 4 carried a photograph of Lt. Mary Eaton Wendt, Army dietitian, formerly stationed in New Zealand, and her husband, Col. Walter Wendt, upon their arrival at Staten Island from London where they were recently married.

Della L. Cordery. Miss Cordery, chairman of the Industrial Nutrition Committee for Essex and West Hudson Counties, New Jersey, and co-author of the manual *Some Suggestions for Operators of Industrial Cafeterias*, described in this JOURNAL for May, died of pneumonia April 15. Miss Cordery was a very active member of the staff of Public Service Electric and Gas Company, Newark, and her death is considered a great loss to the company and to her many business associates.

Canadian News. The biennial meeting of the Canadian Home Economics Association will be held August 27–31 at the Royal Alexandra Hotel, Winnipeg, and the program will include the following well-known authorities: Bernice Dodge, editor, Household Finance Corporation, Chicago; K. Mackenzie, Nylon Division, Canadian Industries, Montreal; Dr. C. Strachan, Experimental Farm, Summerland, British Columbia; J. Prescott Blount, Perishables Department, United Airlines, Chicago; Dr. Olive R. Russell, Department of Veterans Affairs, Ottawa; and Dr. Flora Thurston, Cornell University, Ithaca.

At a meeting on January 19 at the École Superieure de Pedagogie Familiale when the French-speaking home economists entertained their English-speaking confreres, Evaline LeBlanc, supervisor of home economics, the Catholic Schools of Quebec, presented a brief history of the former. The Association of French-Speaking Home Economists was founded in Montreal November 25, 1939, she said. There are over 250 members in both the first organized group and the filial in Quebec City which became a branch in 1942. There are two vice-presidents and two secretaries on the executive board and study days are organized at different dates in both cities during the same year. In the Province of Quebec a large number of home economists belong to the different religious orders. These have their own association but the religious and lay groups of teachers cooperate in many ways.

Protein Digestion *in* PREGNANCY

It is estimated that twenty-five to seventy-five percent of pregnant women develop hypochlorhydria during the course of their pregnancy.

Limited peptic digestion accompanying hypochlorhydria may lead to protein depletion of the mother and impaired growth of the fetus.

When hypochlorhydria is present, prescribe AMINOIDS* for your patients. Because this protein hydrolysate product supplies pre-digested protein, the need for peptic digestion is largely obviated.

AMINOIDS contains the amino acids and peptides present in four high quality protein foods—beef, wheat, milk and yeast. One tablespoonful four times daily supplies 16 grams of protein as hydrolysate. Amounts up to and exceeding 100 grams daily may be assimilated with ease.

Aminoids

REG. U. S. PAT. OFF.

A PROTEIN HYDROLYSATE PRODUCT

ACCEPTED AMERICAN MEDICAL ASSN. Council on Foods

For Oral Administration

Supplied as dry granules in bottles containing 6 ounces, AMINOIDS is palatably taken in any hot or cold beverage.

*The name AMINOIDS is the registered trade mark of The Arlington Chemical Company.

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Arlington

Alabama Dietetic Association. The tenth annual meeting, Birmingham, April 28, consisted of a business meeting, morning session on nutrition in Alabama, luncheon, and afternoon session on diet in medicine. Presiding officers included Beatrice Finkelstein, president of the association and assistant professor of nutrition, Alabama Polytechnic Institute; Dr. E. Neige Todhunter, head, Department of Foods and Nutrition, University of Alabama; Dr. Agnes Harris, dean of women, University of Alabama; and Anne Gretschmann. Maniza Moore, President, American Dietetic Association, gave the luncheon address. Other speakers included: Drs. Roy R. Kracke, dean of Medical School, University of Alabama, George Dennison, public health director, Jefferson County, Tom D. Spies and Carl Vilter, Spies Clinic, Birmingham, and Florence Lutz, chief dietitian, Northington General Hospital, Tuscaloosa.

The Tuscaloosa branch of the association has accepted responsibility for publication of a mimeographed news bulletin concerning nutrition activities of the state. It was further agreed that the association purchase sufficient copies of *Dietetics as a Profession* to place one in the hands of each adviser to high school girls.

Newly elected officers are: president, Anne Gretschmann, Birmingham; vice-president, Esther Scott, T.C.I. Hospital, Fairfield; secretary, Elizabeth Jacobs, Howard College; and treasurer, Mrs. Alice R. Lewis, University of Alabama.

Iowa Dietetic Association. In place of the annual spring meeting which was cancelled owing to travel restrictions, the Executive Board met May 28 at the Memorial Union, Iowa State College. Tentative plans were made for a fall meeting and revision of the state constitution and bylaws was discussed. Through election by ballot mailed to association members, the following officers were selected for the year beginning September 1945: president, Elsie Ann Guthrie, director, Women's Dining Halls, Iowa State College; president-elect, Edna Kenney, University Hospitals, Iowa City; vice-president, Beatrice Donaldson, Department of Institution Management, Iowa State College; treasurer, Mina Wyckoff, Voorhees Hall, Coe College, Cedar Rapids; secretary, Mildred Torrence, Iowa Methodist Hospital, Des Moines.

Iowa now has three official members of the national House of Delegates: Dr. Grace M. Augustine, Department of Institution Management, Iowa State College, serving her second year; Hazel Swim, director of food service, Currier Hall, University of Iowa; and Gwen Scharfenburg, Lutheran Hospital, Fort Dodge.

L. Beata Reager, State Hospital, Cherokee, and retiring president of the association, during the past year has sent the national A. D. A. *Courier* to all members by round-robin letter. Miss Guthrie expects to continue this plan.

Kansas Dietetic Association. A new, well-equipped Red Cross Canteen has recently been opened at Fairfax Airfield in Kansas City. In response to a call for volunteers, 102 women have begun training as Dietitian's Aides and Canteen Aides. Mrs. Alice Coolbaugh Halter and Mrs. Ruth Dillon Heckler, members of the association, are instructors of the canteen group. Among the volunteers are 50 business girls for whom an evening class is conducted and who upon completion of the course will take charge of the canteen from 6 to 10 p.m. Mondays through Fridays. Home economics teachers have offered their services for Saturdays and Sundays.

The Kansas City *Star* recently published articles explaining the work of dietitians in the Army and in civilian life, and reported several projects of the state association. The second article described an interview with the Wyandotte High School dietitian and told of the problems encountered in school lunchrooms due to shortages, rationing, and increased patronage, and how these are met.

The Dietary Department of University of Kansas Hospitals has prepared a diet manual which, when published, will be available at $2.50.

An 8-page instruction booklet for diabetics is to be published under the auspices of the Kansas City Dietetic Association at a price of approximately 25 cents. This will contain a page for the patient's diet outline, vegetable and fruit groups given in household measurements, general instructions for diabetics, and food composition figures. Booklets will be available from Berdena Rosenow, University of Kansas Hospitals, Kansas City.

Recent appointments include: Mrs. Dorothy Fizzell Boone, Colorado General Hospital, now at Bethany Hospital, Kansas City, replacing Mrs. Alice Coolbaugh Halter, resigned; Hildegard Knopp, Mt. Sinai Hospital, New York, now at University of Kansas Hospitals, replacing Mrs. Georgia Mae Landrith Matassarin; Berdena Rosenow, graduate of the training course at the University Hospitals, now ward dietitian, replacing Josephine Wilson, who has accepted an appointment at St. Mary College, Leavenworth; Virginia Monohan, Presbyterian Hospital, New York, now instructor and clinic dietitian at University Hospitals.

The following students will complete the dietitian training course at the University Hospitals August 1: Christina Doyle, Arkansas; Marguerite Vesley, Pennsylvania; Margaret Webb, Louisiana; and Ina Belle Zimmerman and June McIntire, Kansas.

Louisiana Dietetic Association. The annual spring meeting was held in May at Charity Hospital, New Orleans, Bernes Larson, New Orleans public health nutritionist, presiding. Officers elected for the coming year are: president, Jeanne LeTourneau, Charity Hospital; vice-president and president-elect, Anna B. Wilson, Tri-State Hospital, Shreveport; secretary and treasurer, Chlorea Robinson, Central Louisiana State Hospital, Pineville; national delegate, Madge Myers. Miss LeTourneau presented a short paper on hospital dietitians as community educators. Mrs. Elva Kahrs, Touro Infirmary, Mrs. Mildred Darnell, and Miss Myers were appointed to a committee for the purpose of organizing and editing a state association bulletin. At a dinner served in one of the special dining rooms of the hospital, Margaret Moore, nutritionist, State Department of Health, discussed nutrition problems in the state.

The evening meeting consisted of a talk by Chester Fresh, M.D., assistant professor of medicine, Louisiana State Medical School, on the relationship of medical and dietary departments in Army and civilian hospitals, and a review and summary of the aims, activities, and accomplishments of the Committee on Nutrition Research in Louisiana by Grace A. Goldsmith, M.D., chairman of the committee and associate professor of medicine, Tulane University Medical School.

Missouri Dietetic Association. The program of the wartime conference of the association in St. Louis, April 20–21, included the following speakers and subjects: Mrs. Bessie Brooks West, The Future and You; Vern C. Lautner, Current Situation and Future Outlook for Institutional Equipment; Louis A. McKeown, Wage and Hour Laws in Missouri; John Bracken, member of Health Committee, American Association of School Administrators, The Dietitian—Keeper of the Keys to Good Nutrition; Dr. A. G. Hogan, Nutritional Significance of Newer Members of the Vitamin B Complex; Dr. G. O. Broun, Dietetic Management of Cirrhosis of the Liver; Col. Charles R. Williams, Life With Our Armed Forces in the China-Burma Theater; and Dr. R. D. Williams, There's More to Learn. Mrs. Marie Harrington, National Dairy Council, was program chairman. Ethel Ollis, Research Hospital, Kansas City, interpreted the new national Constitution, and Hazel Chilton summarized reports of section projects. Reports of nutrition progress in Missouri were given by Floyd Tuchscher, WFA; Mabel Cook, State Board of Education; Mary Reeves, State Board of Health; and Dr. Bertha Bisbey, State Nutrition Committee. A tea for students at nearby colleges was the concluding event of the conference.

Officers for the year 1945–46 are as follows: president, Mrs. Vesta Odell, 4394 West Pine, St. Louis; president-elect (also editor of *Missouri Mutterings*), Helen McLachlan, St. Louis University Hospitals; vice-president, Mary Reeves, State Board of Health, Jefferson City; secretary, Hazel Chilton, St. Luke's Hospital, St. Louis; treasurer, Luella O'Neill, University of Kansas City; delegates, Ethel Ellis, Research Hospital, Kansas City; Mrs. Theodora Stebbins, Alexian Brothers Hospital, St. Louis; Mrs. Eugenia Shrader, 6650 Waterman, St. Louis; and Mrs. Odell. Section and committee chairmen include: Diet Therapy, Mrs. Struble; Community Nutrition, Miss Reeves; Food Administration, Miss Ollis; Professional Education, Miss McLachlan; Vocational Guidance Committee, Karen Rugard, Lindenwood College, St. Charles.

New Hampshire Dietetic Association. At its regular May meeting the association had the privilege of entertaining Gladys Hall, executive secretary of the national organization, who brought a delightfully informal, inspirational message from A. D. A. headquarters. A luncheon in honor of the fifth anniversary of the association was given by Alice VanDyke of St. Paul's School, at her home in Hopkinton.

Reports presented at the business meeting indicated that New Hampshire dietitians are active and enthusiastic and that the association is financially sound. Members were present from Hanover, Laconia, Franklin, Keene, Durham, Dover, Portsmouth, Somersworth, Milford, Concord, and Manchester. Three members are on active duty overseas.

Recent appointments include: Mary Casey, Somersworth, now with the U. S. Army, Clara Watkins and Marguerite Poore, now on staff of Franklin Hospital and Dow Academy, Franconia, respectively; Dorothea Bartlett, Nashua Memorial Hospital, now chief dietitian, Cambridge Hospital, Mass.; Mrs. Orissa Crowell, Elliott Hospital, Manchester, now at Hillsboro County Hospital, Grasmere.

Ohio Dietetic Association. Youngstown Hospital, badly in need of help, received greatly appreciated assistance from Red Cross Dietitian's Aides who responded willingly to the call.

At a recent meeting on postwar planning sponsored by the Dayton Chamber of Commerce and League of Women Voters, dietitians were represented by Mrs. Jacqueline Carney and Mrs. Dorothy Glaser. The first conference was mainly promotional

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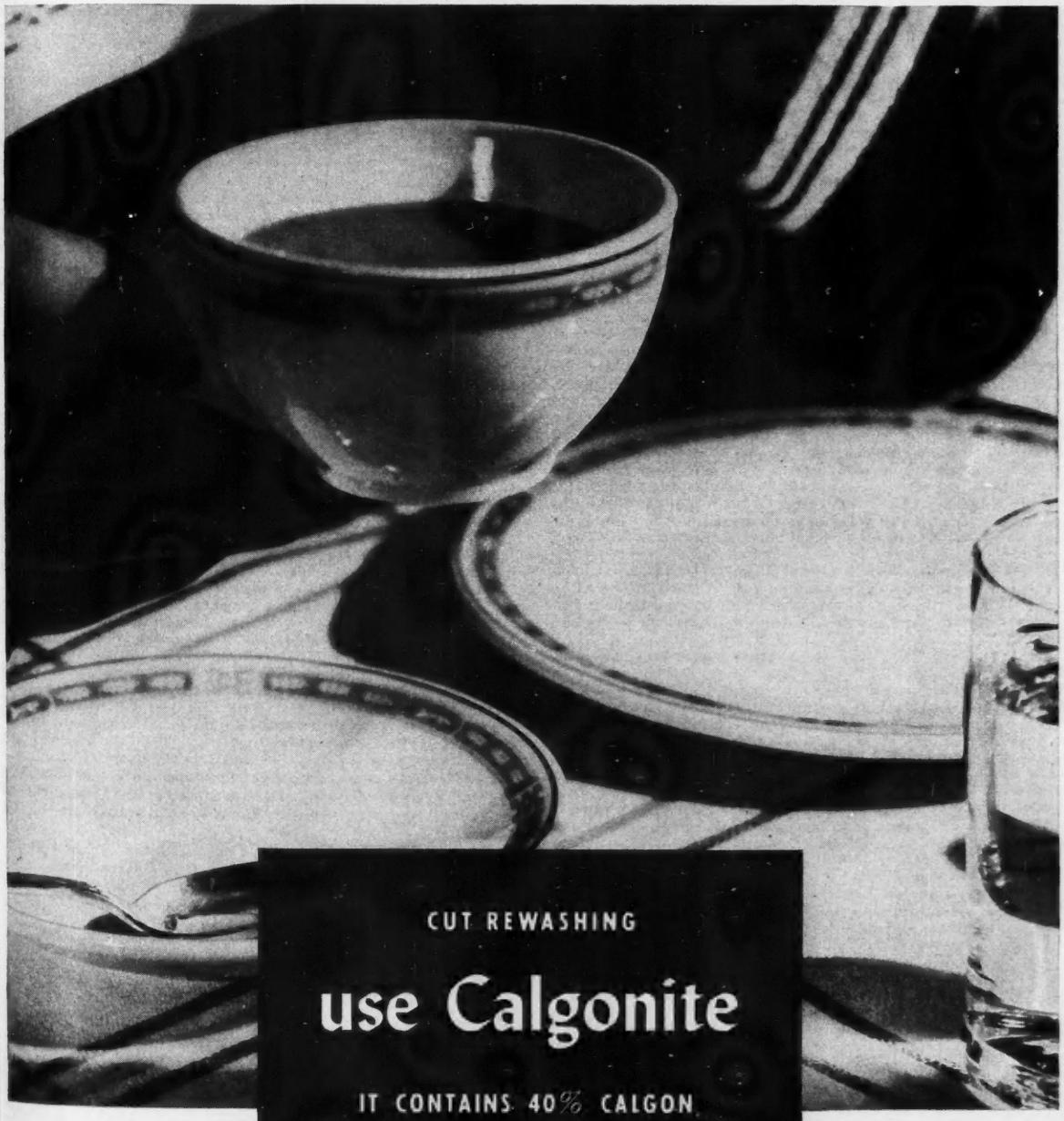

but it is expected that subsequent meetings will develop specific plans and activities.

The main kitchen of Miami Valley Hospital, Dayton, is being entirely remodeled. Even with walls knocked out and floors torn up, the Dietary Department, with Henriette Pribnow as director of nutrition, is still managing to serve three meals a day on time.

At the May meeting of the Akron Dietetic Association at Akron City Hospital the following officers were elected: president, Elizabeth Scofield, Peoples Hospital; vice-president, Ellen Martin, Children's Hospital; Hazel Hooker, Martha Helpbringer, and Jean Landefeld, all of City Hospital, as secretary, treasurer, and membership chairman, respectively. Mrs. Eula Robins, Goodyear Tire and Rubber Company, is chairman of Press Relations, and Miss Martin, chairman of Program and Activities Committee.

Recent appointments include: Alice McKinney, now head dietitian, Bethesda Hospital, Cincinnati, replacing Mary Louise Allaire, who has resigned to be married; Jane Wager, graduate of the student dietitian training course at the University of Cincinnati, succeeds Miss McKinney as a dietitian at the Nurses Home, Bethesda Hospital; Mrs. Catherine Recklewicz, now at Dunham Hospital, Cincinnati, replacing Mrs. Helen Chrisman Schrader, now at Springfield Hospital.

Oklahoma Dietetic Association. A one-day business session was held May 26 at Oklahoma City to replace the annual spring meeting.

The University of Oklahoma Hospital is installing a cafeteria for cadet nurses and has added 85 beds to the main hospital.

Oklahoma General Hospital is building a new wing which will house the general offices and permit an extra 33-bed capacity.

Mrs. Bertha M. Smyers, chief dietitian, Hillcrest Memorial Hospital, Tulsa, has completed a soft diet recipe manual.

Central Pennsylvania Dietetic Association. The Nominating Committee has been announced as: Eloise Tschantz, chairman, Lancaster General Hospital; Annabelle Watts, Williamsport Hospital; and Ethel Diem, Laurelton State Village.

Recent appointments include: Carlene Erb, Lewistown Hospital; Cecilia Pudelbewicz, formerly at Oil City Hospital, now at the Harrisburg Hospital; Sylvia Coffman, Laurelton State Village, now supervisor of school cafeteria, Port Jervis, New York; Phyllis Friel, Wilkes-Barre, now at the Muncy State Home.

Texas Dietetic Association. The secretary's report at the meeting of the Executive Committee in April showed a paid-up membership of 89. Amendments to the constitution were discussed and voted on and will be sent to the A. D. A. for approval after which they will be adopted by the state association. Nell Morris, chairman of the Food Administration Section, reported on progress made to date concerning a study of edible food waste at Texas State College for Women. Grace R. Bailey, chairman of Professional Education, is endeavoring to determine from those teaching nutrition to student nurses, the reactions toward A. D. A. outlines which are now being tested. Lucille Langham, who has replaced Dr. Mabel Perry Polan as chairman of the Community Nutrition Section, presented her plans for nutrition workers in the state.

Rose Richter, Bradford Memorial Hospital, Dallas, as chairman of the Placement Bureau, has announced in the *Bulletin* of the Texas Hospital Association that she would be glad to hear from hospital superintendents interested in obtaining the services of dietitians.

The Executive Committee of the State Nutrition Council met at Texas State College for Women, April 13.

At the April meeting of the South Texas Dietetic Association, Dr. Eby Nell McElrath, University of Houston, discussed new curative drugs. On May 19 a dinner of frosted foods was given association members by C. R. Glazier and Company. The following officers were elected: president, Helen Osoba; vice-president, Blake Patrick; secretary and treasurer, Marjorie Lipp; delegate-at-large, Gertrude Morse; nominating committee, Irene Hardy, Miriam Meading, and Frances Scanlito. Copies of *Dietetics as a Profession* have been placed in the Houston Public Library, the Y.W.C.A., Home Economics Department of the Houston Public Schools, and the office of the County Home Demonstration Agent.

The Dallas Dietetic Association elected the following officers at the May meeting: president, Drewsilla Beams; vice-president, Sadie Kate Bass; secretary, Joyce Kraege; treasurer, Beatrice Heatley. Mr. Marion Church, an attorney of Dallas, exhibited and discussed his cook book collection of over 400 volumes dating from the 18th century to the present day. New members of the association are: Mrs. Anna Clore, Children's Wartime Service, Board of Education; Lucy Lee, Consumer Service Department, Standard Brands, Inc., Dallas.

Texas State College for Women has 29 ex-students serving as Army dietitians at present—16 in the states, 12 overseas, and one returned from overseas duty. Those in this country at present are: First Lt. Mary West Robertson and Second Lts. Mary Alice Biederman, Betty G. Chapman, Ida Moss Crosby, Pauline Dietz, Jessie Rebecca Fredlock, Ruth Louise Frey, Martha Jo Hawes, Katherine Heilman, Opal Howard, Dot Miller, Eileen Moore, Georgie Belle Richards, Helen Stafford, Dorothy Lu Vorhies, and Helen T. Smith. Overseas are: First Lts. Chrystene Adams, E. Beth Andrews, and Second Lts. Janet Elizabeth Bear, Ruby David, Elsa Marian Miller, Marjorie Eudora Minor, Mary Katherine Montgomery, Sybil Schlottman, Helen Slimp, Teresa Tunnell, Mary Louise Lassiter, and Herma Smith.

First Lt. Evelyn Dershimer has returned from overseas after 32 months as hospital dietitian in the Persian Gulf Command, and is at Army Ground and Service Forces Redistribution Station, Miami Beach, awaiting reassignment.

The annual dinner sponsored by the Institution Management Division of Texas State College for Women was attended by 43 students taking the course. Guests included 10 home economics faculty members and 7 students of the administrative course. Many of the students are taking the special Occupational Therapy Medical Course under the sponsorship of the Department of Fine and Applied Arts. Visiting lecturers have included Drs. John Chapman and J. Warner Duckett, staff members of Southwestern Medical College, Dallas.

Selma Streit, business manager, Scottish Rite Dormitory, University of Texas, for 23 years, has resigned her position.

Vermont Dietetic Association. The spring meeting was held in Burlington, May 5. This was an open meeting to which persons in allied fields and students majoring in home economics in various colleges in the state were invited. A high light of the program was the presence of Gladys E. Hall, executive secretary of A. D. A., who brought greetings from the national organization and told about the projects and the needs in the field of dietetics. Loren Gibson, marketing specialist from the Office of Marketing Services, WFA, gave an interesting talk on Continuous Factory Inspection and Grading of Processed Products. Dr. Harold B. Pierce, professor of biochemistry, University of Vermont, and chairman of the State Nutrition Committee, told of the survey which is being made in the state on the nutritional status of children. Dr. Pierce was elected an honorary member of the state dietetic association.

West Virginia Dietetic Association. At the business session of the fourth annual meeting the following officers were elected for 1945-46: president, Margaret Joseph, St. Joseph's Hospital, Parkersburg; vice-president, Frances Matuschak, Fairmont General Hospital; secretary, Marguerite Watkins, Williamson Memorial Hospital; treasurer, Ona Stinson, McMillan Hospital, Charleston; delegate, Mildred Kent, Ohio Valley General Hospital, Wheeling. The following speakers and subjects were included on the program: Mr. Kurt Albrecht, Technical Department, Calgon, Inc., Pittsburgh, Pa., Job Analysis for Dishwashing and Postwar Forecast; Mr. Miles, Kanawha District Food Rationing Board, Food Rationing; Mr. Don Irvine, sales manager commercial cookery and bakery equipment, Edison Electric Company, Chicago, History of Development of Cookery and Plans for Postwar Equipment.

The association plans to hold its 1946 meeting in Parkersburg.

News From Advertisers and Exhibitors. Vegex Company, 175 Fifth Ave., New York, has prepared for distribution a booklet especially designed for the dietitian and offering nutritional information and recipes concerning their three specialty products: Vegex Extract, Vegex Dry Gravy, and Vegex Seasoning, the last of which also serves as an economical, flavorful, and instantaneous consommé maker.

The Children's Issue of *Food Servicer*, edited by Mary Mason, director of Home Economics Department, "Junket Folks," Little Falls, N. Y., contains recipes for summer desserts, birthday parties, and light suppers, incorporating the use of rennet custard and milk drinks.